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MT. LEBANON ROAD, ALLEGHENY COUNTY. ASPHALTIC CONCRETE DURING THIRD SUMMER. NO EXPENSE FOR MAINTENANCE.

ROADS OF ALLEGHENY COUNTY, PA.*

Asphaltic Concrete Roads Carry Heavy Traffic for Three Years with No Expense for Repairs—Old Macadam Base—Brick Pavements—Patrol System of Highway Maintenance.

In 1909 our Board of Commissioners, after a careful investigation of roads in and through the eastern states, awarded contracts for the first asphaltic-concrete surfaces in Allegheny County. The ease with which this surface is laid, the slight inconvenience afforded the travelling public, and the fact that it is a dustless road, convinced the Commissioners and the public in general that it was a step in the right direction towards solving the road question. The roads first treated with this asphaltic-concrete surface were those that were subjected to the heaviest kind of travel. All kinds of automobile travel, hauling of heavy builders' supplies, etc. Neither of the roads constructed during 1910 have as yet required one penny of cost for maintenance, and present conditions seem to be improving with age.

The asphaltic-concrete road, while costing more than the old style macadam is cheaper in the end when one

considers the matter of maintenance. We feel that we will not be required to do anything in the way of repairs for eight to ten years, while with the macadam road our conditions require resurfacing, or top dressing, every two or three years at most.

In using the term "asphaltic-concrete" I wish to make it clear that I do not refer to the form of construction which has been exploited during the past two or three years and misnamed "asphaltic concrete," being mostly a sheet asphalt or mortar pavement (less the essential binder course) with a very little (the specifications say "less than 10 per cent," which may be none) crusher screenings coarser than one-fourth inch in size. The presence of this small percentage of fine crushed stone surrounded or "floating" in mortar in my opinion makes the construction weaker than a pure asphaltic mortar without the screenings for the reason that the tendency of traffic is to dislodge any of the other detached particles of stone which may be nearer the surface.

*Extracts from paper before Third American Road Congress, by John S. Gillespie, Road Commissioner of Allegheny County, Pennsylvania.

The asphaltic concrete of Allegheny County measures well up to the clear, concise definition adopted by the American Society of Municipal Improvements for true asphaltic concrete, as follows:

Bituminous concrete is a pavement consisting of a combination of broken stone and sand, or fine mineral matter, cemented together with a bituminous cement, and which has all its ingredients mechanically mixed before being laid. To be termed a bituminous concrete it must partake of the well known characteristics of concrete; that is, there must be stone enough in its composition to form an important part thereof and add to its strength and durability; also, there must be enough of the mortar constituent (that is, the sand and bituminous cement) to properly support and bond together the largest particles.

This differentiation between the true, real and the spurious misnamed asphaltic concrete is most important.

While we have paid considerable attention to the asphaltic concrete road, asphalt penetration work also was carried on. Various grades of asphalt were used for this work, and the roads laid to date all seem to be in excellent condition. Close on to 45 miles of this class of road has been laid. This pavement has been laid on roads that are not subjected to as heavy travel as the ones on which we place asphaltic concrete.

The brick road has not been overlooked, either. Approximately, 42 miles of brick roads have been laid. Probably half this mileage has been laid with the old macadam road as a base. This work is done by the maintenance branch of the Road Department. Brick construction costs \$22,000 to \$25,000 per mile, and covers 13 ft. 6 ins. of brick pavement, two concrete curbs (flush and combination curb and gutter types), with concrete base five inches in depth. It also covers grading, drainage, etc. As a matter of general information to those who have not gone over any of our roads and will probably question the reason of our high costs, would say that our grading averages 11,000 to 12,500 cubic yards per mile of road. Many streams are encountered, and the construction of culverts and bridges further add to the cost. As herein stated, a large part of our brick work has been done by our maintenance branch using the old macadam road as the base. The surface is scarified and formed to a true cross section, concrete curbs built, sand cushion placed and the brick laid. The surface is then grouted with a cement and sand mixture of equal parts. We find that the increased life of the road laid on this old macadam base, gives us a road much cheaper than with the concrete base and we get a solid foundation. One of the bad features in connection with this class of pavement is the grinding off of the brick at the expansion joints alongside the curb, and the breaking off and grinding up of the concrete curb.

A large percentage of the asphaltic concrete roads in Allegheny County have been laid over the old macadam utilized as a foundation after levelling up and scarifying where the contour or depression is such as to require such regulation of grade. It is my belief based on our practical experience of four years' use in Allegheny County that this is the most economical and successful method of conserving the macadam on country thoroughfares on which the automobile traffic has become so great as to make it impracticable and uneconomical to longer maintain the macadam as a wearing surface.

Last, but not least, in the matter of our highway improvement, Allegheny County was not only among the first in the matter of road improvement, but at the same time we inaugurated a "patrol system." This system has been in service since the completion of our first roads, and is added to as occasion demands. Today we have 128 caretakers on our various roads. We en-

deavor to place a man on each road, that is, we give each of our caretakers four to five miles of road to care for. It is the duty of these men to keep the roads in good shape at all times, insofar as minor repairs are concerned. They are required to look after the drains; the earthen road alongside the improved portion must be kept free from grass and weeds; all loose stones must be removed from the road, and they must look after the removal of all small slips or slides. Also, all obstructions, such as telephone and telegraph poles, sewer heads, bridge walls and copings, etc., must be whitened or whitewashed. These act as a guide to the traveling public and are very much appreciated. They also are required to keep the department advised of any and all accidents that may occur, making detailed report of the same.

INTENSE RAINFALL AT NEW BRIGHTON.

There occurred on October 1 of this year in the Borough of Richmond, New York City, a storm which is believed to have surpassed all records in intensity. This rainfall began at 7.20 a. m. and up to 5.40 p. m. there had fallen 7.54 inches which is equivalent to about 20 per cent of the average annual rainfall during recent years. During the two hours of greatest rainfall, from 1 to 3 p. m., there fell about 16 per cent of the entire annual rainfall, or 6.15 inches. Through the courtesy of the Commissioner of Public Works, Louis L. Tribus, we have been furnished with a diagram showing the intensity of the rainfall throughout the storm and also the total amount represented by a continuous mass curve. This diagram is too large for reproduction, but we will endeavor to state the more interesting features shown by it.

Two records were taken, one at Borough Hall and the other at Stapleton. Up to 1-50 there had fallen at the city hall a total of 3.8 inches, and at Stapleton a total of 4.6 inches. At this time the Stapleton gage ceased to work. As the total amounts of rainfall at each period were read only at the city hall gage, we will give only the figures which were obtained at that locality. Up to 1 p. m. the intensity had not at any time exceeded 0.65 inch per hour and the total rainfall had amounted to just 1 inch. At that time, however, the intensity increased very rapidly and at 1-35 had reached the rate of 6 inches per hour, where it remained for practically 9 minutes when it suddenly dropped to 3 inches, but again rose quite rapidly and attained a rate of 8.4 inches per hour at 2-11. Again the rain diminished rapidly and at 2-16 had fallen to 0.6 inch, again rapidly rising to a rate of 6.6 inches. From this time, with rapid and considerable fluctuations, the rate fell to 0.1 inch per hour at 3-10 and remained at practically this rate during the remainder of the storm.

The following rates have been calculated as lasting for the times indicated, during the height of this storm: 3.06 inches per hour for 2 hours and 3 minutes; 3.37 inches per hour for 1 hour and 46 minutes; 3.80 inches per hour for 1 hour and 25 minutes; 4.44 inches per hour for 59 minutes; 4.75 inches per hour for 49 minutes; 4.84 inches per hour for 37 minutes; 5.05 inches per hour for 19 minutes; 5.16 inches per hour for 15 minutes; 5.64 inches per hour for 10 minutes twice during the storm; 6.24 inches per hour for 7 minutes; 6.25 inches per hour for 4 minutes; 8.10 inches per hour for 2 minutes; 8.40 inches per hour for 1 minute.

The gage used was the Draper self-recording pluviometer, which was located on the roof of Borough Hall at New Brighton at an elevation of 145.36 above mean high water. The amount of rainfall at each period was read direct by the observers A. C. Clapp and J. C. Coll-

yer, and the diagram was prepared by the latter, who is assistant engineer in the Bureau of Engineering Construction. From 1 to 3-20, during the height of the storm, the wind velocity was low. The temperature at noon was 62 degrees Fahrenheit and was the same at 4 p. m.

During the height of the storm, all storm water sewers, with the probable exception of a few laterals at the upper and undeveloped sections of the drainage areas, were overtaxed; the intensity of the rainfall being, roughly speaking, two and a half times as heavy as the intensity for which the sewers were designed. As the percentage of the runoff probably approximated 100, the amount of water was more than three times that allowed for in the computations. The sewers had never before flowed full, during the twelve years since they were constructed.

A great deal of erosion was caused by the storm in the undeveloped sections of several drainage areas, and a large amount of silt and stones was carried down the steep slopes and filled up some of the sewer basins at the upper ends of the laterals; but in the lower sections, where streets are generally improved, the basins, with very few exceptions, worked throughout the whole storm, the rush of water carrying silt and stones through the basins into the sewers. The sewers remained in working conditions with two exceptions, these consisting of a 15-inch pipe sewer which was completely blocked by stones and silt washed in through basins located on a street with unpaved gutters; and a 3-foot sewer provided to carry the dry weather flow from a trunk sewer with a section equivalent to 10 feet circular, the two storm water overflow channels of this intercepting sewer running to their full capacity. There was, however, considerable deposit of silt and debris in some of the sewers and some damage was done to the outlets by washouts.

Most of the damage done by the storm, however, was to the roads, some macadam roads being completely destroyed. On many streets, gutters paved with paving blocks or brick, some on concrete foundations, were undermined and destroyed. An entire block of a side hill street paved with iron slag block pavement on a concrete foundation was washed out, the water getting into the sand cushion between the foundation and the blocks and lifting the blocks. During the height of the storm many streets were flooded, reaching a maximum depth of 3 feet 5 inches in one section. Cellars were generally flooded throughout the lower sections and considerable damage done to goods stored in them.

THE STEAM TURBINE PUMP.

By W. L. VENNARD, City Engineer, Lynn, Mass.

The only criticism which operating engineers have made of the steam turbine is its high speed; but in answer to this we find:

First: The successful use of machines of both large and small capacity covering a period of ten years in this country and much longer in Europe.

Second: The fact that designing engineers can determine accurately all of the stresses in the working parts and design the machines to perform exactly the work required with the same factor of safety as used in the reciprocating types.

Third: The life of the turbine is made equal to the slow speed reciprocating machine by properly proportioning all of the parts which are subject to wear.

The only changes which have been made in the design of the steam turbine since it has been placed on the market as a commercial machine, are the arrangement of the stages and the dimension of the nozzles which affects the pressure reductions per stage; and these

changes have been made only to improve the economy, that is, to reduce the steam consumption of the unit.

We have further found that replacements caused by accidents are made more quickly, due to the fact that parts are kept in stock by the manufacturers. With the reciprocating type these parts usually have to be specially built after the accident has occurred. Due to the simplicity of the steam turbine driven centrifugal pump and the fact that there are very few wearing parts, it is evident that a machine of this type will maintain its efficiency or economy for a greater period than any other type.

An additional feature which must not be overlooked is the fact that a machine of the type we are considering occupies considerably less space than any other type and consequently the cost of housing is minimized.

The valves of the reciprocating machine are an endless source of trouble and require a considerable amount of attention to keep the machine to its proper duty; all of which troubles are lacking in the centrifugal pump, on account of the absence of these parts. The flow of water from the centrifugal is continuous and is devoid of pulsation, thereby reducing the stress on the pipe lines and the valves therein.

We now propose to show that it costs less to install, maintain and operate an up-to-date steam turbine driven centrifugal pump than other forms of steam or motor driven pumps. To determine properly the cost of pumping, there are a number of items frequently overlooked which must be taken into consideration. These items are:

1. The interest on the investment.
2. The depreciation in the value of unit.
3. The depreciation on the necessary building and foundations.
4. The cost of attendance.
5. The cost of maintenance or repairs.

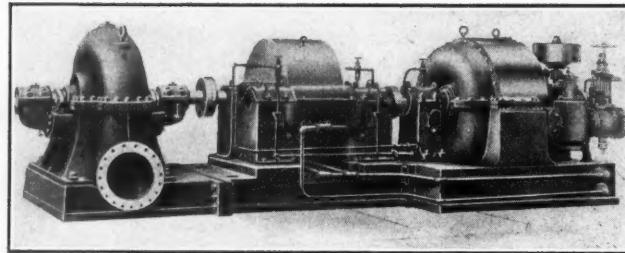
Let us assume that the common size of pumping unit for municipal pumping service is 15 million gallons per diem and the pressure against which the pump operates is 60 lbs. per square inch. A vertical triple expansion pumping engine for these conditions will cost about \$90,000 delivered and erected on suitable foundations with all the necessary auxiliaries and accessories, including condenser, steam and water piping, valves, etc. This unit will develop an average station duty of about 160 million feet-pounds per thousand pounds of steam, provided the steam pressure is 125 lbs. This steam pressure is the average at the majority of pumping stations throughout the country. Higher station duties than the amount which we have named can be obtained, but only where higher steam pressure is carried or superheat is supplied, and these are exceptional conditions. The boilers and settings to operate this unit delivered and erected will cost about \$9,000 and the building with the stack and foundations will amount to \$40,000, making a total investment of \$139,000. The yearly cost of operating this type is properly made up as follows:

Depreciation on pumping engine at 3%.....	\$2,700.00
Depreciation on boilers at 6%.....	540.00
Depreciation on building at 3%.....	1,200.00
Interest on the investment at 4%.....	5,560.00
Cost of coal for pumping service (coal costing \$4.75 per short ton).....	3,485.00
Cost of coal for raising steam.....	231.00
Cost of coal for banking fires.....	155.00
Labor, 2 engineers.....	1,800.00
2 oilers.....	1,440.00
2 firemen.....	1,200.00
1 utility man.....	600.00
Oil and waste	450.00
Engine repairs	900.00
Boiler repairs	450.00
	\$20,711.00

An up-to-date steam turbine driven centrifugal pump delivered and installed on foundation, with all the necessary auxiliaries, including condenser, wet and dry vacuum pump, piping and valves will cost \$20,000.

The boilers and settings necessary for this unit will cost \$12,000 and the building with stack and foundations will cost \$25,000, making a total investment of \$57,000. The yearly cost of operating this unit, based on 12 hrs. service and with coal costing \$4.75 per short ton, is made up as follows:

Depreciation on pumping unit at 3%.....	\$600.00
Depreciation on boilers at 6%.....	720.00
Depreciation on building at 3%.....	750.00
Interest on investment at 4%.....	2,280.00
Cost of coal for pumping.....	4,650.00
Cost of coal for raising steam.....	231.00
Cost of coal for banking.....	155.00
Labor, 2 engineers.....	1,800.00
2 firemen.....	1,200.00
1 utility man.....	600.00
Oil and waste.....	100.00
Repairs on pumping unit.....	200.00
Repair on boilers.....	600.00
	\$13,886.00



STEAM TURBINE.

It is apparent from the above that the saving made by the steam turbine driven centrifugal pumping unit amounts to \$6,825 per year, which if capitalized at 4 per cent represents the interest on about \$170,000.

Consideration has frequently been given to motor driven pumps for municipal water works service where the power to operate the station is supplied by outside parties. The following figures will show the excess cost of pumping if this form is used. A motor driven centrifugal pump for the same conditions as we have mentioned above, complete with the necessary switchboard, wiring, etc., will cost \$15,000 and a building suitable for housing this machine will cost the same amount, making a total investment of about \$30,000. We will assume that current can be purchased for 8/10 of a cent per kilowatt hour, which would be an extremely low rate. On this basis the yearly cost of operating would be as follows:

Depreciation on building at 3%.....	\$450.00
Depreciation on pump at 3%.....	450.00
Interest on investment at 4%.....	1,200.00
Cost of current based on 12 hrs. service.....	10,330.00
Labor, 2 engineers.....	1,800.00
1 utility man.....	600.00
Oil and waste.....	50.00
Repairs	100.00
	\$14,980.00

A comparison of this yearly cost with the steam turbine driven shows that with the latter type there is a yearly saving of \$1,094 obtained in favor of the steam unit, and this amount capitalized at 4 per cent represents an investment of about \$27,000. In other words, due to the saving which can be obtained with the steam driven unit it would be feasible to spend at least \$27,000 more for the steam unit and still have the same yearly cost of operation. The above figures have been checked by an expert pump man and two professors of an engineering college.

The conclusion which must follow from the facts outlined above is that, due to the economy which can now be obtained with the steam driven centrifugal pump, it will do the work required at minimum cost and with entire reliability. Also the first cost is the lowest.

CONTROL OF SIDEWALKS.*

Departments or Officials Which Have Charge of Construction and Maintenance in Forty-five Cities—

Full Control by City Recommended.

By A. PRESCOTT FOLWELL, Secretary of the Society.

In the early part of this year a member of the society requested the Clearing House to obtain information concerning the methods followed by up-to-date cities in order to avoid the objectionable features of the inspection of sidewalk work by city engineers, and to secure compliance on the part of property owners with the city ordinance requiring them to construct and maintain sidewalks and curbs of standard types. The city engineer making the inquiry said, "The enforcement of the sidewalk ordinance is imposed upon the city engineer and entails an enormous amount of petty detail and annoyance."

Responses were received from forty-five city engineers giving replies to this inquiry. It seems to the author probable that a number of members of the society would be interested in learning what information was obtained by the Clearing House in connection with this subject. Accordingly he has endeavored to give in as brief a form as possible the general tenor of most of the replies.

The methods employed by the several cities may be classified under three heads: First, those in which the city does the entire work, in most cases charging all or part of the cost against the property owner. Second, those in which the matter is left entirely to the property owner, either without any inspection or with only nominal supervision. Third, those in which the contractor is placed under bond. Fourth, those in which the property owner is required to construct sidewalks when ordered, make his own contract for the construction, which construction the city engineer or a similar official is supposed to carefully oversee, and is to a certain extent responsible for.

1. WORK PERFORMED BY CITY.

Richmond, Indiana, writes: "All work of this kind is done by the city; that is, the city lets the work by contract and exercises careful supervision over it, assessing the cost to the property owner. Only in exceptional cases, where the property owner possesses a long frontage, such as a block, and petitions the city for the privilege of constructing the work by private contract, is such a permit granted him, on condition that the work be done according to the standard city specifications and under the inspection of the engineering department."

Asheville, N. C., "lets contracts for this kind of work and employs an inspector, and the property owners pay for same."

In Valdosta, Ga., "all sidewalks are paid for by the city, the work being done under the supervision of the city engineer. Two-thirds of the total cost of this work is assessed against the abutting property." The same is true of Albany, Ga.

In Columbia, S. C., "all sidewalk work is done by contractors employed by the city or by the city's own force, and the work carried on directly under the supervision of this office. We have a competent paving inspector who not only inspects all the sidewalk work being done, but the street paving and other concrete work as well."

*Paper before American Society of Municipal Improvements.

In Aberdeen, Washington, and in fact in all the cities of that state, a property owner has no more to do with building his own sidewalks than he has to do with paving the streets. They are both part of the municipal work and are let by contract.

In Lethbridge, Alberta, "all sidewalks are built under local improvement, the city bearing fifty per cent. of the cost, and the frontages affected, the balance. In view of this, the city lets a contract for all the sidewalks petitioned for and recommended in the early spring, and all the work is done by one contractor working on the designs of the city engineer and under his supervision, the contract thus becomes of sufficient importance to demand the inspection of the city engineer's department, and I would say that we have had no annoyance on account of details of construction."

In Winnipeg, Manitoba, "all sidewalks are laid out by the city, or by contractors under city supervision. It is not understood how any other system could be worked to advantage."

In Hamilton, Ontario, "the city lays all the sidewalks and curbs, there being no contract work whatever."

In Victoria, B. C., "no private parties are allowed to do any work on the public streets, all sidewalk work being carried out by the department by day labor, and if any special crossings or entrances from the curb line to the property line are required, the department does the work and charges the property owner with the cost."

One city engineer in New York State writes that in his city he believes there are a few more objectionable and disagreeable features than ordinary in connection with the sidewalk work. "I think they would all be eliminated, however, if we might conduct our sidewalk construction in the same manner as we lay a pavement or build a sewer, that is, make a plan and specification and let the contract for a complete job from one end to the other."

A New Jersey engineer also has experienced these difficulties and writes: "I have maintained for several years past that the repairs to sidewalks and curbs should come under the same status as repairs to the roadway and that the cost of such work should be included in the budget for road maintenance. This would make it possible for city engineers to make the necessary repairs at such times and places as in their judgment they are required, without regard to the petitions of the property owners of same. The maintenance cost of work of this kind is a very small fraction of road maintenance and I believe rightfully should be included. In the construction of sidewalks and curbs, I believe they should be given the same consideration as road construction, and should be laid by the municipal authorities and should be assessed against the abutting property. This, of course, applies only where the assessment plan is in operation."

2. NO SUPERVISION.

Pawtucket, Rhode Island, has no city ordinances covering the subject of sidewalk construction and appreciates the disadvantage of this. It cannot compel a property owner to repair his sidewalk nor charge him with the expense of repairs made by the city. The city furnishes and sets all street curbs, charging the cost of the stone, but not the setting, to the abutting owner. If the owner sees fit to construct a concrete curb in front of his property before the city orders the street curbed, there is no restriction and no inspection of the work.

In Norristown, Pa., sidewalks are constructed by the property owner, the only ordinance requirement being that they shall not be of wood or slabs of stone (except flagging) and have a slope of not less than $\frac{1}{2}$ inch to

the foot above the top of the curbstone; also, all concrete work done on the public highways shall be constructed according to specifications prepared by the city engineer. The engineer is not supposed to make personal inspection of sidewalks. The entire responsibility for maintenance of sidewalks, including suits for damages for accidents, are left entirely to the property owner.

In Birmingham, Ala., the city engineer furnishes grades and lines for sidewalks on condition that they be built according to city specifications, "but the carrying out of the specifications is a matter of the integrity of the contractor or the watchfulness of the owner, the engineering department being in no way responsible for the quality of the work." Such sidewalks as the city constructs are done by contract under city inspectors.

In Fort Worth, Texas, and probably in other Texas cities, the homestead law does not permit the city to require an owner to construct a walk in front of his premises if this property be all he owns and he resides on the same. All improvements of sidewalk and curb are paid for by the owner and with one or two exceptions the work has been done by private contract in 50 or 100-foot sections, making inspection difficult and costly and the setting of grades and lines particularly so. "I have for a long time been trying to have sidewalks and curbs put down a block at a time, but as yet have, except in a few instances, been unable to do so."

In Quebec, "sidewalks are maintained by proprietors and the city reimburses one-half of the cost. If they do not keep sidewalks in good order, police constables report them direct to the recorder's courts."

3. BONDING CONTRACTORS.

In Ames, Iowa, the city council early in the spring lets a contract for all sidewalk work which it may wish to do during the year. Property owners are notified to build sidewalks, and if they refuse to do so, the work is done by the contractor with whom that year's contract has been made. This work is done under city specifications, and no inspection of the job is made, but the contractor is required to put up a bond and then "is left to his honor to do the work according to contract and the specifications. This may appear to be a very loose way, but it has proven so successful in this town that most sidewalks are put in by the city contractor." The engineering department merely gives lines and grade for this and other street work.

In Decatur, Ill., all contractors are required to give a bond and a three-years' guarantee. If the property owner does the work himself, he is required to give a bond to the city. The engineer only fixes the grade and stakes out the work.

In Kalamazoo, Mich., sidewalk work is done by licensed contractors who are under bond to the city. The inspection is put up to each property owner and he can employ any licensed builder, the engineering department giving grades only to licensed builders.

In Pine Bluff, Ark., when a certain territory requires sidewalks a blank is filled out by the city engineer, signed by the clerk and mayor and served on the property owner by the chief of police. "In regard to handling inspection, I found it a very troublesome and unsatisfactory proceeding but about two years ago I had an ordinance passed placing all sidewalk and concrete contractors under a bond of maintenance to the city in the sum of \$1,000 for each and every job of work. Just an ordinary bond for \$1,000 with a clause 'to apply to each and every individual contract' had been held legally binding. I also had an ordinance passed requiring a contractor to take out a permit for each job and for this

permit a fee of one-half cent per square foot is charged, which amount is ample to pay the salaries of all the necessary inspectors without using any men from the office or regular engineering force." Should the engineer consider the contractor's price too low to give a reasonable profit on good work, an extra inspector is placed on the job. If the contractor is found to be deliberately and consistently doing poor work he is cautioned, and if again found guilty of such conduct he is refused any further permits for sidewalk work.

In Grand Forks, N. D., there is no inspection other than inspection of the work after completion. "The contractors make application at the office for line and grade for each and every piece of walk to be laid. A card index form is used giving lot, block, addition, street, name of owner, name of contractor, date of application, date of survey and completion of work (to be inserted afterwards when same is made), also signature of surveyor. This card serves as an order to the field crew who signs same when the survey is completed. When the work is finally checked, the date of completion and measurement is put down.

"To insure good work we require the contractors to put up a two-year guarantee bond in a sufficient amount to cover a liberal percentage of their work. If in the opinion of the engineer the work is defective at the end of two years it will have to be replaced, not repaired. After two years' trial will say that the system works well, and we get much better results than under the old inspector system."

(To be continued.)

STANDARD UNITS FOR MUNICIPAL WORK.

Editor Municipal Journal,
New York, N. Y.

Dear Sir:

The writer has read with great interest the account in your Journal of the action of the American Society of Municipal Improvements in adopting and defining certain units of paving work, and your editorial comment of October 16 relating to the same. The action of the society and your editorial emphasize a statement made repeatedly by the writer in the Census statistics of cities, that until cities adopt common standard units for reporting municipal activities no statistics can be compiled by the Census or other governmental office or by private agencies which will satisfactorily exhibit the costs of the various municipal services and the quantity and quality of work performed. The units of paving work recommended by the American Society of Municipal Improvements, if adopted by our city engineers in their specifications for contract bids, and for published reports of work done and the costs of the same, will open the way for really valuable statistics—statistics that are not now practicable for more than a very limited number of cities. The latest Census statistics of street paving include for some cities the costs of the wearing surface only, while for others they include the cost of one or more of the following items: (1) Cost of excavation; (2) cost of curbing; (3) cost of gutters; (4) cost of base; and (5) such costs as those for grading and filling the street, constructing catch-basins, laying drains, and tearing up streets for making water and sewer connections.

Statistics for a dozen cities which would present the costs for each of these different classes of work under appropriate headings would be of greater practical value than the Census statistics without such differentiation for all cities.

What is true concerning paving statistics is equally true with reference to street cleaning, refuse disposal, and many other branches of service. Municipal accounts should be kept as they have been for many years, so as to show the fidelity and honesty with which the public officials have expended money. Those accounts should, however, provide the public with much additional information—information that will disclose the economy and efficiency of the administration of public officials as well as produce evidence of their honesty. To provide this additional information, municipal accounts of work done and of expenditures must be grouped around common standard units such as those suggested by the American Society of Municipal Improve-

ments for paving work and paving costs. This fact should be kept constantly before the public if we are to see our city governments, as we hope may be the case, models of business economy and efficiency in administration.

L. G. POWERS,
Chief Statistician, Bureau of the Census.

PUBLIC OWNERSHIP IN PORT ARTHUR.

Port Arthur, Ont., October 25, 1913.
The Municipal Journal,
50 Union Square, New York.

Dear Sirs:

I notice an item in the Municipal Journal of October 2, 1913, in which reference is made to the town of Orillia, Ontario, as being the first municipality in Canada to own all its public utilities.

This statement appears to be a little strange, from the fact that the city of Port Arthur, Ontario, has owned and operated all its public utilities for a number of years, the dates on which each utility was put in operation being about as follows:

Electric street railway, since.....	1891
Electric light for street and domestic purposes, since	1894
Municipal telephone system.....	1903
Water-works system	1904

Municipally owned and operated power was first developed and used for supplying power for street railway and light in 1901, replacing steam. Owing to the development of the city, the Ontario system of hydro-electric power was adopted by the city in 1910 and the old municipal plant retained for pumping water and to keep down the peak load.

The telephone system developed so rapidly that in 1910 the Bell Telephone Co. withdrew, and the city now has municipal telephones only, to the extent of 2,580, the rates for which are \$15.00 for domestic use and \$36.00 for business purposes.

There are also 3,800 light customers, the rate being 3c. per k.w. There are 2,530 customers supplied with water from the municipal system. Power is also supplied by the corporation to local institutions at rates ranging from \$15.00 to \$25.00 per h.p.

The statement that the city can supply water and current at prices lower than a private corporation is not always correct, for the reason that municipal corporations are often much too liberal in extending lines and water mains to distant sections of the municipality, causing an enormous sum of money to be spent where very little revenue is received.

The system of extension often has a serious effect upon the whole community, because once citizens are thus located schools, churches, fire halls and all such necessities have to follow. This is also one of the causes for the high cost of living.

Yours truly,

W. S. BOWDEN.

NEW MARKET HOUSE FOR RALEIGH.

The city of Raleigh, N. C., has had plans prepared by an architect, J. M. Kennedy, for a market house which is estimated to cost \$20,000, including \$2,000 for equipment. The style is distinctly Spanish mission. The material is white brick and concrete, with roof of red clay tiles, supported by steel trusses; floors and sidewalk of concrete; the roof to extend 14 feet over the sidewalks and beyond them, and to be supported by steel brackets. This is done in order to give protection to market wagons.

The front and rear ends of the building will be two stories high, carried up in tower form, and in the front second story will be the laboratory for the milk and meat inspector, and an office for the keeper of the market. In the roof are long skylights.

The building will have two corridors extending north and south, and one east and west. In front will be space for 16 meat stalls, each 12x16 feet, and in the south end 16 stalls for vegetables, fish and oysters. The interior will be faced with white glazed brick to a height of 10 feet. The stalls will have glass counters. All outside doors and windows are screened and protected by wire guards.

In the basement will be a cold storage plant and rooms for cold storage, and also what are known as chill rooms.

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CHANGE OF ADDRESS

Subscribers are requested to notify us of changes of address, giving both old and new addresses.

Contributions suitable for this paper either in the form of special articles or of letters discussing municipal matters, are invited and paid for. Subscribers desiring information concerning municipal matters are requested to call upon MUNICIPAL JOURNAL, which has unusual facilities for furnishing the same, and will do so gladly and without cost.

NOVEMBER 13, 1913.

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Cost of Road Paving.

An illustration is given, in the article this week on Allegheny county roads, of the desirability of using more definite units in stating costs of road work. We cite this case simply because it is at hand and not because it is unusual—unfortunately it is not, but such instances are altogether too common.

Referring to the cost of brick pavement quoted of \$22,000 to \$25,000 a mile, the author of the paper explained that this covers not only wearing surface and five inches of concrete foundation under about half of it (the rest is on old macadam reshaped), but also curbs and gutters, grading averaging 11,000 to 12,500 cubic yards per mile, and culverts and bridges over many streams. In other words, it tells nothing of any interest to anyone but the taxpayer, and does not enable him to compare the cost with that of any other road *on the basis of value received*. The cost given figures out \$2.78 to \$3.16 a square yard, probably three times what the wearing surface itself cost.

The cost of the brick delivered on the work and the labor of laying it, applying filler, etc., could easily be separated from the rest of the work, since probably the teams and men doing this worked at it exclusively for the time being. The same would probably be true of the grading. The concrete curbs, gutters and base it might be more difficult to separate from each other, but the cost of all combined per cubic yard could certainly be calculated with little trouble. Culverts and bridges might or might not be easily separated from the other concrete work. (We are assuming that no special effort is made in the field to separate these accounts). But if

any daily force account is kept of the men employed on each class of work, it should be possible to give costs per cubic yard of grading, per cubic yard of concrete and per square yard of brick wearing surface—a by no means perfect segregation of items, but a vast improvement over a cost-per-mile unit.

Dual Water Connections.

Recent investigations in the city of Philadelphia have revealed 140 dual connections, as they are called; that is, the existence of establishments which have their water piping connected not only with the city main, but also with a private supply which is obtained frequently if not always from a contaminated stream. The danger is that the polluted water will find its way through the piping in such buildings into the city mains and thus contaminate the entire city supply. This may account for epidemics of typhoid fever which are apparently due to the water supply, while analyses taken at the pumping plant or at the effluent from a purification plant show a water which is practically free from all typhoid germs.

In a great many cases these dual systems have been put in for the purpose of fire protection and at the suggestion of the Fire Underwriters' Association. Attention has been called to this danger several times in papers by water-works engineers, and others, but it is apparent that sufficient consideration has not been paid to the matter. Every board of health and water-works superintendent should be absolutely certain that he knows of every instance of a factory or other building which has a private supply from a polluted source, and insist that these two supplies be so entirely separated the one from the other that there is no possibility of the impure water finding its way into the city mains.

Municipal Bonds.

The market recently has been much more favorable for municipal bonds than for some time past. Dealers in the east are taking all the municipal bonds they can find. Many issues that were offered without success in the spring have since been purchased privately and are no longer in the market. It is said that more than \$10,000,000 of "municipals" have been sold "over the counter" (in small lots) by Boston bond houses since the first of October. Since October 15 the following cities have sold bonds on the basis stated: Springfield, Mass., 4.07; Buffalo, N. Y., 4.275; Auburn, N. Y., 4.39; Paterson, N. J., 4.50; Wilmington, Del., 4.47; Spartanburg, S. C., 4.46; Ashland Co., O., 4.75; Houston, Tex., 5.00; Ellensburg, Wash., 5.00; Chattanooga, Tenn., 5.58; Mulberry, Fla., 6.00; Buhl, Minn., 6.00. Six months ago cities were finding difficulty in disposing of bonds on a 5 per cent to 10 per cent higher basis.

Sewers and Unusual Rainfalls.

We give elsewhere the records of an unprecedented rainfall at Richmond Borough, New York. It is generally held that cities are not legally responsible to property owners or others for insufficient capacity of sewers to handle unusual storms; and as sewers of such capacity would cost two to five times as much as those ample for ordinary rain storms only it is not considered best from an economical point of view to spend the enormous additional sums required to secure absolute immunity from flooded streets. But the sediment which was deposited in the intercepting sewer at Richmond Borough suggests that there are certain details which can be adapted at slight expense to so meet the most excessive demands as to protect the sewers and appurtenances from damage; and for this end these maximum rainfalls can be studied with profit.

The WEEK'S NEWS

Lincoln Highway Dedicated—New Highway Bridges—The Year's Paving in Several Cities—Diphtheria Epidemics—New "White Ways"—Lower Gas Rates—The Progress of Motorizing—Important Bond Sales.

ROADS AND PAVEMENTS

The Lincoln Highway Dedicated.

Dedication ceremonies of the Lincoln Highway, the new direct roadway through 13 states from coast to coast, have been held with local celebrations in all towns and villages along the route. Roads adopted by the highway will have their local names dropped and "Lincoln Highway" substituted. State consuls are now being appointed along the route and in other states to arrange in the distribution of contributors' certificates for the \$10,000,000 fund necessary to complete the Lincoln highway.

Lincoln, Neb.—All along the route of the Lincoln highway through Nebraska, towns and villages celebrated the opening of the road. In many towns fireworks and parades marked the occasion. At Fremont special school programs were held, with those who have backed the project in this state speaking to the school children. The most elaborate program for the day was at Grand Island. In the past four weeks, \$30,000 worth of \$5 certificates of membership have been sold in Nebraska. H. E. Fredericksen, western consul, expects to sell \$125,000 worth in all in this state or 19,000 more certificates. County consuls are busy selling them in every county in Nebraska that is on the highway. Certificates are being sold in like proportion—to population—in every state through which the road passes.

Boone, Ia.—The Lincoln Memorial highway was formally dedicated at the largest road meeting ever held in central Iowa. J. H. Dodge, of Washington, a government good roads expert, delivered an illustrated address on road making. Boone expects to raise \$10,000.

Clinton, Ia.—An automobile parade three blocks long and red fire were the chief features of the Lincoln memorial highway inauguration celebration held here. The Clinton good roads committee, a branch of the Commercial club, was in charge of the demonstration. Clinton is the entrance point to Iowa of the Lincoln highway, having been selected by the officials of the route several weeks ago in preference to Davenport. The latter city made a strong fight for a place on the highway map.

Having failed, the city showed its good will by sending several representative citizens here to take part in the local celebration.

Threshers May Use New York State Roads.

Albany, N. Y.—John N. Carlisle, commissioner of highways, has amended the rules and regulations recently adopted governing the use of traction engines and power and motor vehicles on the improved state and county highways so as to permit the use of traction engines, used for threshing purposes only, without having them constructed in compliance with the new rules until January 1, 1914. This amendment was adopted to accommodate the farmers who had feared that if the rules adopted were enforced now would seriously interfere with threshing. The amendment to the rules is made with the understanding that the traction engines will not do any damage to the highway, and the county superintendents and town superintendents of highways, are directed to enforce the provisions of the highway law governing the injury to the improved state and county highways. After January 1, 1914, the rules, as

adopted, will be rigidly enforced and this interim will give the manufacturers and owner of traction engines an opportunity to make the changes required. The amendment to the rules applies only to traction engines used for threshing and not traction engines used for hauling or any other purpose, and the owners of all traction engines are directed to use dirt roads whenever possible.

Slag Dressing Experiment.

Binghamton, N. Y.—An experiment with slag roads in this city will be tried as the result of a trip to Cortland made by Mayor John J. Irving and Commissioner of Public Works Charles S. Darling. The city officials spent much time inspecting the streets where slag pavement has seen hard service. They plan to use two carloads in experimental work this fall. The surface of the roadbed will be removed to the depth of 7 inches and the slag mixed with a binder of asphalt rolled hard. The cost of this improvement is much less than oiling the roads and lasts longer. The product is iron slag and will be obtained very cheaply. It is believed a satisfactory pavement can be laid in this city using the iron slag for 80 cents a sq. yd.

Water Rentals Pays for Bridge.

Watertown, N. Y.—One of the arches to the bridge be-



THE NEW WATERTOWN BRIDGE.

ing erected by the water board in the eastern part of the city has just been concreted, and with a continuation of favorable weather conditions at least one more span will be completed before work ceases for the winter. The bridge will cost about \$30,000, and will be paid for entirely out of money that has accumulated from water rentals. The main arch has a span of 140 feet and two smaller ones 58 feet each. The total length of the structure is about 300 feet. The bridge will eliminate one railroad crossing and do away with the necessity of entering the city by way of the railroad tracks. The state will build a highway next year in the vicinity of the bridge, opening a new street. The steel work is being placed and many of the concrete forms are up. The bridge will be finished some time next summer.

Extensive Resurfacing.

Lynn, Mass.—Lynnfield street, for its full extent of two and one-eighth miles, or from the Peabody and North Saugus car line to the Lynn Woods extremity, is being resurfaced under the direction of the officials of the county of Essex. The road, when completed, will be turned over

to the State by the county, and the former will then maintain it. It will become a State highway, therefore, when it is finished. Because of the numerous rainy days which have marked the month, the work will not be finished for about a week. D. Linehan & Sons, of Pride's Crossing, the contractors who have the job in charge, are to pay a \$10 a day forfeit if the work is not completed within the time limit set, but rainy days are not counted in this forfeit. They expect to finish resurfacing the work on time and according to contract. John Regan, of Malden, is foreman of the job of resurfacing the road, and has 54 men at work. The method is used for the first time in Lynn, the pouring being done in three coatings instead of two. First a layer of $2\frac{1}{2}$ inch crushed stone is laid down; over this is placed a sand filler; then comes another layer of crushed stone; then a coating of Bermudez, an elastic asphaltic preparation; then a layer of chestnut size stone is placed; this is topped by another treatment with Bermudez, and finally the small pea-sized stones are placed on top of the whole and the road is rolled down firm. It is claimed that when this Lynnfield road is finished the thoroughfare will not ravel and will stand all kinds of traffic four or five years before it needs repairing. A stone crusher has been established about a mile and a half from the Lynn Woods end of Lynnfield street to crush the stone for the work, and this crusher is run by a 50-horsepower electric motor, the power being furnished by the Lynn Gas and Electric Company. A 15-ton steam roller is in operation on the road at present, rolling down the surface. There are two rock drills working on the job and a stone blaster. About 25 of the men on the job are camped near the stone crusher. Lynnfield street will be macadamized by this process for a width of 18 feet when the street is completed, and there will be a gravel shoulder of three feet left on each side of the street. The road when finished will be, it is claimed, the finest thoroughfare for automobiles anywhere in the vicinity of Lynn.

Convict-Built Roads Association Formed.

Dallas, Tex.—A resolution advocating the working of state convicts of the first class upon the highways of Texas by the state was adopted unanimously by the Texas Convict-Built Roads Association, a new organization which was formed at a mass meeting at the Chamber of Commerce of about eighty representative business men from all parts of the state. The new organization is to be only temporary, according to the plans of those at the meeting, with the sole purpose of securing legislation for the working of convicts upon the highways of the state under supervision of some state department. J. L. Goggans, of Dallas, was elected president; Morris Stern, of Galveston, vice-president, and H. H. Haines, of Galveston, assistant secretary. The association voted to establish offices in Dallas. There are to be thirty-one vice-presidents, one representing each senatorial district in the state. Frequent reference was made during the proceedings of the day to the Colorado system of working convicts on the roads, evolved by Warden Thomas J. Tynan, of the Colorado prison system, and it was made clear that the association is to work toward some law that will adapt the general ideas of that system to Texas conditions.

A New Highway Bridge for Capital.

Washington, D. C.—The arrangements for executing a contract for the work on the fine new bridge will be completed very shortly, District Engineer of Bridges D. E. McCoomb having conferred with A. L. Guidone, who sub-

mitted the lowest bid for the construction. The bridge, which is to connect Washington with Georgetown, will have five spans and will cost \$275,000. Originally designed with seven spans, the structure, it was found, would cost more than the appropriation available, which is about \$190,000 for the construction of the bridge proper without the approaches or ornamental features. The design and specifications were prepared under the direction of Mr. McCoomb and Glen Brown, supervising architect. It is expected that work on the bridge will start in December and that a year and a half will be required for finishing it.

The Year's Work in the Cities.

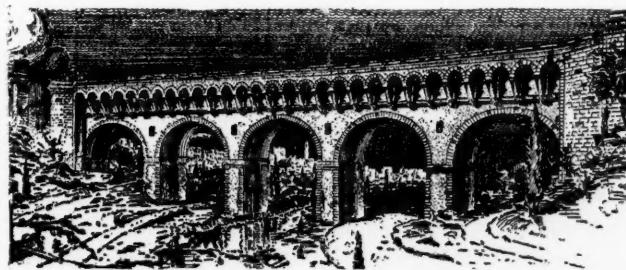
Tacoma, Wash.—The last paving contract to be awarded by the city during 1913 has been accepted, and for the first time in recent years paving work has not been dragged through the rainy months to the detriment of the quality of the pavement and the quick dispatch of the work. Commissioner of Public Works Woods determined last spring that all pavement contracts would be let early in the year, to be finished by the time the autumn rains began. The public works department indicates that the largest number of miles of cement sidewalks ever laid in the history of the city was placed, or is being placed, in 1913. The total is approximately thirty miles, and every section of the city is benefited. Mr. Woods took up the campaign last spring for better walks because of the large number of damage suits being filed against the city due to injuries received by pedestrians stubbing their toes and stumbling over the old plank walks. Very few dollars were actually paid out in damage claims, but the increasing number of claims being filed served as a warning that someone might be injured seriously at any time and recover a sum that would pay for a mile or more of walks. Only a little more than six and one-half miles of hard surface pavement contracts were awarded and laid during the year, which cost a total of \$182,189. Nine contractors did the work. The work of actually laying the asphalt was done by the Independent Asphalt Paving Company, which handled most of the work, and by the Barber Asphalt Paving Company. Asphaltic-concrete was the most popular pavement, as 2.3 miles of this material were laid, compared to 1.54 miles of straight asphalt. Commissioner Woods allowed the property owners to choose the kind of pavement. Only 0.03 of a mile of brick pavement was laid and .035 of a mile of concrete pavement. The two latter materials were used in alleys exclusively. With the work done this year the total paving in the city amounts in all to 100.57 miles, or 2,103,140 square yards. The total amount of street improvements awarded and finished by Mr. Woods during 1913 is as follows:

Grading and walks	\$94,672.89
Grading only	63,804.00
Sidewalks only	19,316.70
Paving	182,189.00
Sewers	1,158.00

Total \$361,140.59

Not included in the above table are two large sidewalk contracts, amounting to \$22,000, which were let recently and are not yet finished. There were more than seven and one-half miles of paving contracts awarded during 1912, which were uncompleted on January 1, 1913, or more than all of the contracts let during the current year.

Galesburg, Ill.—With the completion of the pavement on Lincoln street, Galesburg will have laid this year approximately two miles of pavement on five different thoroughfares, at a cost of about \$100,000. The greatest single piece of work of the year was an improvement representing 2,626 feet in length and costing \$42,560. The total cost for pavements for the year was much enhanced by the cost of the Main street pavement because Main street is wide enough to make practically two streets, of the width of the center pavements laid. Ferris street has been paved for a distance of 2,378 feet, at a cost of \$18,917; Waters street for 1,192 feet, at a cost of \$8,530; Beecher avenue, for 2,606 feet, at a cost of \$19,795, and the Lincoln street job for a distance of 1,277 feet, to cost \$9,703, is still in progress. The work and material has been of the best, and the results already obtained have more than justified the expenditure.



NEW HIGHWAY BRIDGE AT WASHINGTON, D. C.

Auburn, N. Y.—The extent of the work done by the twenty-three towns of Cayuga county on highways broke all records this year, according to County Superintendent of Highways J. Charles Dayton. The amount of money appropriated for road work by the town boards was unusually large this year. Convict labor and new machinery enabled the money expended to make a greater comparative showing. Four less bridges were built than in 1912, but in other departments of highway work a large increase in activity is recorded. Many culverts have been constructed. The Town Boards of ten of the towns have held meetings to receive the financial reports of outgoing highway superintendents and to give instructions to incoming officials. The officials elected last spring have assumed office. The changes are as follows: Cornelius Hallicy succeeds Ernest Terpening in Ira; Charles H. Tyler, Manley Beach in Conquest; David Butler, John A. Rockefeller in Montezuma; Frank J. Riley, George S. Gates in Sennett; William Glanville, C. W. Jones in Owasco; Clayton Goodale, John Merriman in Summerhill; Frank Gillespie, Charles Hollister in Genoa; Charles Hoskins, John Neville in Scipio; Wallace J. Carr, George Hellen in Ledyard and William J. Lee, L. J. Wallace in Aurelius. In towns where there will be a change in officials all work for the year has been completed.

Scranton, Pa.—Figures compiled by City Engineer William A. Schunk show that paving laid so far this year is an increase of over fifty per cent. over the total amount laid in the year 1912. The total cost for paving work this year is \$170,812.44, and the total yardage is 78,119. The cost includes the curbing, basins, receivers, headers, grading and cost of inspection, and in the opinion of the engineer the total sum expended is not exorbitant. The lowest rate for paving here this year was for one job of asphalt paving at \$1.74 per square yard, and the highest was for combination work, asphalt in center and eight feet of block stone on the sides, at \$2.46 per square yard. This latter job included exceptionally heavy grading, Mr. Schunk declares. The lowest pave cost in 1912 was \$1.65 per square yard on the Luzerne street job, which was the lowest bid in the history of the city. The comparative cost of work for the two years show that there has been no material increase or decrease in the price of work. The majority of the paves laid are of asphalt, while some are of asphalt and block stone and a few of brick. This is the first year that combination paving with asphalt and block stone has been attempted in this city.

SEWERAGE AND SANITATION

Diphtheria Epidemic in Passaic Valley.

Paterson, N. J.—Diphtheria, which first developed among the school children of Clifton, N. J., a suburb of Passaic, has spread to Totowa, Saddle River and Paterson, adjoining cities along the Passaic River. In Paterson if any more cases develop in Public School No. 13, on the east side of the city, it will be closed. Between seventy-five and one hundred cases have been reported to the health officers of the various places. The epidemic seems to have been conquered in Clifton, where last week there were forty-one well developed cases, but appears to be spreading in the other places. Six pupils of Public School No. 13, in Paterson, were reported ill of diphtheria in one day, and the parents of fifteen or twenty other children took them out of school. The building is an old one, and as a precaution it has been fumigated frequently. The residents of that neighborhood have been asking for a new building for several years. In Totowa the Board of Health and the Board of Education held a joint meeting and decided to close the kindergartens at once. Five cases of diphtheria have been reported among the very small children. Three of these cases were far developed when found, and the fear was expressed that they had spread the disease to others. In Saddle River, physicians have reported between ten and fifteen cases, but there the disease seems to be light. Physicians in all of the places have obtained the antitoxin for diphtheria, and to its prompt use is ascribed their success in saving all but one case

so far. The one death was that of a little girl in Clifton. So prompt was the work of the health authorities in fighting the epidemic in Clifton that the forty-one cases are improving. The schools, which were closed a week ago, have been reopened after having been fumigated.

Typhoid Forces Town to Pure Water Supply.

Burkittsville, Md.—As the result of an epidemic of typhoid fever, the little town of Burkittsville, at the foot of South mountain, Frederick county, is to have a pure water supply. Warned by the State Board of Health that another outbreak of typhoid, worse than the first, was imminent, the townsfolk got together, organized the Burkittsville Water Company, with \$4,000 capital stock, and then went before the Public Service Commission to ask permission to exercise the franchise. A large spring of pure water on the mountainside will be the source of supply, and a reservoir will be built and wooden pipes laid to carry the water to the town. At the hearing before the Public Service Commission Chief Engineer Phelps recommended that iron pipe be laid, and the town's engineer, G. W. Humm, said this would be done if the cost were not too great.

Bans Free Saloon Lunches.

Paducah, Ky.—The General Council has taken steps to prohibit the serving of free lunches in saloons, contending that they are unsanitary. While some of the saloon proprietors object to the proposed law, there is a number who favor it, claiming that the free lunches are costly and forced upon them because their competitors serve them. A number of proprietors are arranging to evade the law by selling the lunches at a nominal price, while others say they will sell the lunches at the price of a drink and give away the drink.

Health Board Stops Rummage Sales.

Fort Wayne, Ind.—Because of the prevalence of diphtheria and scarlet fever in the city, the city health department has directed two churches that are planning "rummage sales" to call them off. Dr. Crull, secretary of the board of health, declared that although the law is not plain on the subject, he believes that the churches will agree with the authorities that the move is for the best. "Rummage sales in any event are bad enough from a sanitary viewpoint," Dr. Crull said, "but when a city is confronted by as much diphtheria and scarlet fever as we have in Fort Wayne at present, it becomes a positive peril to hold such a sale. The diseases mentioned might be carried into scores of homes that now are free from them."

Close Theatres to Children in Epidemic.

Billings, Mont.—To prevent the spreading of scarlet fever and other communicable diseases, of which some cases have been reported, Dr. E. G. Balsam, city health officer, is asking the aid of the fathers and mothers in the precautionary efforts being made to minimize the danger. Now that the theatre owners have agreed unanimously to refuse admittance to any under 17 years of age, Dr. Balsam is urging the parents to assist by supporting the theatre owners and the health authorities in the stand taken. There are 15 houses in Billings quarantined because of scarlet fever; there are two cases of measles and three cases of chickenpox. There is very little typhoid, though there are several cases at the hospital brought here for treatment from out of the city.

WATER SUPPLY

Valuation of City Plants.

Tacoma, Wash.—Showing a total valuation of \$8,168,059.42 in real estate, light and water plants, distributing systems, stock and fixtures, Commissioner Lawson has completed the inventory of the holdings of the light and water department. The Green river gravity system and the Nisqually power plant are valued at more than \$2,000,000 each. The value placed on the water department holdings is \$4,572,745.92. This does not include the real estate pur-

chase of 1893, when lands now valued at \$432,313.50 were acquired by bond issue as water sources. Interest on the bonded indebtedness caused by the purchase of these lands, none of them in use, is being paid yearly, and none of the original purchase price has been retired. The valuation of the light department holdings is placed at \$3,163,000. The Nisqually power plant, not counting the outside construction of houses at La Grande, is \$2,222,024.94. The valuation of the light and power distributing system about the city is placed at \$771,243.29. Green river gravity system, not counting the distribution about the city, is valued at \$2,329,095.07. The itemized inventories of the light and water departments follow:

Real estate (acquired 1893).....	\$426,613.50
Buildings (acquired 1893).....	5,700.00
Total real estate.....	\$423,313.50

The water department items are:

Real estate	\$25,700.00
Buildings	17,550.00
Water rights	25,000.00
Reservoirs	95,060.00
Standpipes	56,827.00
Wells	16,500.00
Pumping station "A" (machinery & equipm't only)	3,613.64
Pumping station "B" (machinery & equipm't only)	7,497.58
Pumping station "C" (machinery & equipm't only)	31,621.83
Pumping station "E" (machinery & equipm't only)	1,914.05
Pumping station "F" (machinery & equipm't only)	2,432.83
Mains, \$1,672,553; laterals, \$223,128; meters, \$40,-	
803; total water distribution.....	1,936,484.00
Water equipment in service	3,332.29
Water stock	18,541.03
Furniture and fixtures.....	1,576.60
Green river gravity system construction (funds operation)	2,329,095.07
Total	\$4,572,745.92

The light and power items are:

Real estate	\$3,500.00
Buildings	113,119.40
Nisqually power plant.....	2,222,024.94
Tools (La Grande).....	235.77
Furniture and fixtures (La Grande).....	761.20
Distributing system	771,243.29
Wires, poles, insulators, cross arms, etc., \$526,-	
307.20; transformers, \$135,713; meters, \$109,-	
223.09; total	761,243.29
Equipment and service—	
Meter room, \$1,602.25; arc lamp room, \$36.70;	
light, \$611.02; line tools, \$1,804.97; total.....	4,054.94
Light stock	45,635.41
Furniture and fixtures	2,425.05
Total of light department.....	\$3,163,000.00
Total of light and water departments.....	\$8,168,059.42

No Water Outside City Limits.

Spokane, Wash.—Municipal water systems in the state of Washington have no authority to furnish water outside of the city limits, and the public service commission has jurisdiction over them if they did have such authority, according to a ruling handed down by Assistant Attorney-General S. V. Carey to the commission. The decision was requested by the commission to decide a complaint from Ellensburg in which persons living outside of the city sought to compel the city to provide water to relieve a typhoid epidemic.

Progress on Reservoir.

Pittsburgh, Pa.—The work of excavation for the new reservoir on Cabbage Hill, Northside, is practically completed, the last of the ground inside the reservoir space having been broken recently. The work from now on will be on the walls and their lining, and it is not expected that this can be completed before the middle of next summer. According to the contract, the reservoir was to have been completed and turned over to the city on the first of the coming January. The contractors, the John F. Casey Company, were delayed by litigation at the beginning, and the summer of 1912, the first during which they were at work on the job, was very wet, so that it was impossible to make rapid progress. The question of filtered water for the Northside is not involved in the completion of the reservoir, the delay in that respect being due to backwardness in the construction of a pumping station at Aspinwall. As soon as the station is completed filtered water can be served to the Northside irrespective of the matter of facilities for storage.

Try to Block Water Supply.

Los Angeles, Cal.—Judge Dehy of the Inyo county Superior Court has denied the motion presented by the Natural Soda Products Company for a continuance of its injunction suit to prevent water being diverted into the Los Angeles aqueduct from the Owens river. The court, however, adjourned the action pending the arrival of Albert Lee Stephens, city attorney of Los Angeles, and W. B. Matthews, counsel for the aqueduct commission, who are expected here to fight the case. The Keeler Company has also asked for an injunction to restrain the city from diverting the waters of Owens river into the aqueduct. The plaintiff asserts that if the water is diverted the industry of making soda at Owens lake will be destroyed, as the lake would become dry. The lake is one of the largest soda deposits in the world. W. B. Matthews, counsel for the aqueduct commission, has stated that the action of the Soda Products Company was based on water-right claims which were filed several years after such rights were obtained by the city of Los Angeles. The injunction suits to prevent the turning of water into the 260-mile Los Angeles aqueduct was too late to accomplish its purpose. Water was turned into the long waterway several weeks ago, and Los Angeles celebrated the arrival of the new municipal water supply by two days' festivities—one day at the reservoir and the next at a park where a \$500,000 fountain was dedicated. The aqueduct cost more than \$26,000,000, and its completion has brought to the city a water supply capable of furnishing approximately 360,000,000 gallons every twenty-four hours. Further bond issues, involving approximately \$6,500,000, are contemplated to enable the municipality to develop 47,000-horse power of electrical energy to supply the city with light and power.

STREET LIGHTING AND POWER

Lighting the Cities.

Kenmare, N. D.—Following the rapid placing of the White Way posts, cross arms and light globes the fine lighting system of Kenmare has been completed. The lighting system is one of the most up-to-date White Ways in the northwest. Celebration marked the turning on of the light.

Terrell, Tex.—The installation of the new "White Way" lighting system was appropriately celebrated here by 15,000 people. The business houses and principal streets were handsomely decorated and the weather was ideal. All visitors from Ennis, Kaufman and other neighboring cities were met by a large reception committee and escorted to reception headquarters. A leading feature of the program was a mammoth street parade. The parade was led by City Marshal Joe Keller, followed by a company of Confederate veterans, mounted; the city commissioners in carriages, Terrell Band, school children, fire department, decorated automobiles and carriages, floats representing fraternal orders and local business concerns, paving construction company, carnival company and citizens. A special feature of the celebration was a "White Way" wedding in the central business district. The "White Way" bride and groom were the recipients of many presents from the citizens of Terrell. A concert by the Terrell Band entertained the crowd the remainder of the afternoon. The evening program opened by turning on the "Great White Way" lights, the real feature of the celebration, followed by a night parade. A motion picture film of the afternoon parade, wedding and other special features was secured, to be used in motion picture circuits in advertising Terrell in other states.

Little Falls, Minn.—At a signal from Governor A. O. Eberhart, Little Falls passed from almost total darkness to brilliance and became one of the best lighted cities in the northwest. The system consists of 108 posts, each topped with a cluster of five tungstens, reaching in all 16 blocks of the city. Eleven blocks are lighted with a complete set of eight posts to the block and the system extends into five other blocks as far as the business houses reach. The combined system represents 20,240 watts. The arcs which previously lit the section had been removed, so that the

only light on the street before the white way was turned on came from show windows and signs, emphasizing the more strongly the transition from darkness to light. The opening of the system was marked by the usual celebration.

Power Plant Wrecked.

Ogden, Utah.—Breaking of a huge valve controlling the water flow of the Utah Light & Railway Company's Pioneer power plant, at the mouth of Ogden canyon, wrecked the equipment, almost demolished the building, threw two-thirds of Ogden into darkness for more than four hours, stopped street car traffic for seven hours, generally demoralized business and caused the flooding of many blocks surrounding the plant. The cause of the breaking cannot be ascertained as yet, but it is suspected that two small boys threw the switch giving current to the motor operating the intake valve. The force of the water crumbled a wall of the power house and damaged and destroyed much valuable machinery. The monetary loss is estimated at somewhere between \$30,000 and \$125,000, and officials of the company believe that, till minute examinations are made, no better estimate can be made. The engineer in charge of the gates at the dam above the Hermitage, was immediately notified. The dam is so arranged that it takes several hours for a man to shut off the water, but after six men had worked an hour and forty-five minutes the job was done, and the waters which might have torn through Ogden were backed up behind the dam. Meanwhile, within fifteen minutes after the deluge at the Pioneer plant had begun, water had reached the roof and was pouring out of the roof ventilators. The swirl of the flood crumbled away part of the rear wall, and mud, sand and stones were piling up on the delicate and costly dynamos and other machinery. All the lights in the business district except in the circuit controlled by the Merchants' Light & Power Company were immediately put out of commission. Finally the company coupled on the circuit of the Bear River and Salt Lake plants and the business district was illuminated again. What the damage is in the territory flooded outside the power plant itself is unknown, but it is believed that extensive repairs must be made in some places. The water at the plant has a drop of 300 feet through a six-foot pipe and into a three-foot nozzle. The plant was planned to develop 12,000 horsepower.

Will Not Allow Franchise Duplication.

Tillamook, Ore.—That the duplication of public utility concerns in small towns is a waste of capital and does not generally result in benefits for the public at large, is the declaration contained in a letter forwarded to P. W. Todd, city recorder of Tillamook, by the state railroad commission. Recorder Todd wrote the commission saying that a second light and power franchise had been applied for in Tillamook by a company, and asked the commission for advice as to whether it should be granted. Replying, the commission says that it is invested with authority to compel public service corporations to render an adequate service at a reasonable price, and that in its opinion another plant in the city would but result in a waste of capital and no cheaper rates for the people. If the present plant is not providing an adequate service, and its rates are not reasonable, complaints should be lodged against it, says the commission.

Lower Gas Rates.

Sandusky, O.—Sandusky citizens are encouraged with the prospect of cheaper gas, following the passage by city council of the ordinance for 20 cent gas over the veto of the mayor. Passage of the ordinance followed a stirring speech before several hundred citizens gathered in the council chamber by City Solicitor Jones of Newark, who told how Newark people had won a great fight for 18 cent gas under conditions similar to those existing here. After enacting the ordinance, council directed City Solicitor Steineman to bring suit to enjoin the Logan Gas Company from shutting off the supply of natural gas here December 7, as the company threatens to do if a rate less than 30 cents is insisted on by the city.

Minneapolis, Minn.—Minneapolis has won its second victory in the fight for 70-cent gas. The State Supreme Court

affirmed the order of Judge Molyneaux, who refused to grant the Minneapolis Gas Light Company a temporary injunction to prevent the publication of the ordinance which fixed the price at 70 cents per thousand feet. The Supreme Court also suggested that the new rate be tested by actual operation. It is said that the next plan of the gas company to stop the rate from going into effect will be a district court trial in which the reasonableness of the proposed reduction will be tested. In the meanwhile, however, the rate will be lowered immediately. The gas company has already promised to rebate all bills to consumers from September 1 should the ordinance finally be upheld. The Supreme Court, Commissioner M. D. Taylor writing the opinion, held that the ordinance takes effect from the time it should have been published and says that the trial court, having refused an injunction, and the evidence as to the merits being evenly balanced, it is not justified in reversing the decision. The gas company, in appealing, alleged that the new rates would mean a loss of \$300,000 to the company. Commenting on the case, Commissioner Taylor said that there are about 60,000 users of gas in Minneapolis and if the proposed new rates are fair and reasonable and are eventually legalized, but do not take effect until final determination of litigation, the gas company will have recovered over \$800 a day as a premium for prolonged litigation. The court suggested that the new rates be put to an actual test to determine whether the proposed reduction would entail a loss to the company.

FIRE AND POLICE

Reducing the Fire Loss.

St. Paul, Minn.—Minnesota citizens can save approximately \$3,500,000 annually in fire insurance premiums if a concerted effort is made to reduce the fire loss, according to J. A. O. Preus, state insurance commissioner, who has prepared a statement showing what would result should the per capita loss of \$2.02 annually in Minnesota be reduced to 33 cents, the average in Europe. Mr. Preus, who has studied the fire prevention problem in connection with insurance rates, urges that officials of cities, towns and villages and the various commercial and civic organizations in the state take up the matter. His suggestion may lead to a conference to be held next spring, at which methods of reducing the fire loss will be discussed. The table as to premiums paid, losses incurred and per capita loss in the state follows:

	Premiums in Minnesota for ten years.	Losses.	Losses per capita.
1903.....	\$5,611,425	\$2,122,791	\$1.15
1904.....	6,220,421	3,407,894	1.81
1905.....	6,475,574	2,871,563	1.50
1906.....	6,948,051	3,856,636	1.98
1907.....	7,512,356	3,391,950	1.71
1908.....	8,274,074	5,157,443	2.56
1909.....	8,533,765	4,206,125	2.06
1910.....	8,844,938	6,214,984	2.99
1911.....	8,921,074	5,557,871	2.64
1912.....	8,921,074	5,557,871	2.64

Progress of Spartanburg, S. C., Department.

Spartanburg, S. C.—The report of W. D. Mitchell, chief of the fire department, for the fiscal year shows that Spartanburg has an efficient set of fire fighters, and that the department is conducted on an economical basis. For the year buildings and other non-fireproof objects valued at \$557,360, on which there was insurance to the amount of \$289,725, caught fire. The property loss was \$39,739.03, which is a creditable showing. During the year the number of feet of hose used was 5,750; number of times chemical engine used, 6; number of times chemical extinguishers used, 54; number of gallons of chemicals used, 463; number of miles traveled to and from fires, 110½; number of feet of ladders raised, 1,366; time worked at fires, 85 hours and 43 minutes. A careful analysis of the origin of the fires last year shows that the majority of them were caused by carelessness; that a little ordinary precaution in the use of matches and the handling of gasoline would have prevented many of them. The majority of the fires were caused from sparks from the chimneys. There were only a small number of false alarms last year, only nine being rung in. Of the \$20,336.05 expenses in running the de-

partment for the year, the largest single item is \$9,155.28 for wages. The next is \$9,000 for the new American-La France motor truck. The following equipment is reported for the end of the year: The Gamewell fire alarm system with 32 boxes, one triple combination American-LaFrance auto truck, one Seagrave ladder truck, one straight hose wagon, one combination hose and chemical wagon in reserve, one American-La France rotary steamer in reserve, four horses, 4,600 feet of hose in good condition and engine house and other property of the city in good condition.

New Alarm Boxes Work Well.

Lebanon, Pa.—The new fire alarm boxes were tested in the presence of Chairman Frank W. McAdam of the councilmanic fire committee, and Committeemen Harvey L. Gerberich and William H. Frank and also Fire Chief Harry G. Louser and Fire Alarm Superintendent Samuel Burkholder and found to work excellently. These two new boxes were supplied by the Star Electric Company, of Binghamton, N. Y. They are known as positive non-interfering and succession 16-round boxes. The test was a practical one and was made in connection with the present city fire alarm system. Dr. Gerberich pulled one box and Chief Louser the other a few seconds afterwards. Each in turn came in without a hitch.

MOTOR VEHICLES

Propose Extensive Motorizing.

St. Paul, Minn.—Out of a total budget request of \$670,000, an allowance of \$240,000 in addition to the regular appropriation is to be requested for the purpose of motor driven pumping engines, combination chemical engines and hose wagons, and the motorization of hook and ladder trucks. This, according to the fire board, will enable it to dispense with certain fire stations, thereby reducing the cost of maintenance and at the same time afford better fire protection. The statement prepared by the fire board shows that by closing five stations, dispensing with one engine company and one hook and ladder company, and substituting motor-driven apparatus for the present horse-drawn equipment, the annual saving in the cost of maintenance would be \$26,830. This means that while the proposed motorization plan would increase the 1914 budget by \$128,000, the annual saving in the cost of maintenance after the first year would be nearly \$27,000, decreasing the necessary annual budget appropriation from \$430,000 to approximately \$403,000. Some interesting figures are shown in the board's statement illustrating the amount to be saved in the cost of maintenance by the adoption of the motorization plan. They follow:

Retiring 121 horses, present maintenance cost \$120 each, \$14,520; coal for heating sixteen engines, 480 tons at \$9 a ton, \$4,320; soft coal for engines at fires, 160 tons at \$5 a ton, \$800; coal for heating houses, fifty tons at \$9 a ton, \$450; kindling wood for engines, \$175; water and light, \$570; eliminating engine company No. 9, coal and water, \$270; general supplies, \$5,400; eliminating hook and ladder company No. 11, coal, light and water, \$325; total, \$26,830.

Pumping Engine Passes Test.

Morristown, N. J.—After a test that proved satisfactory to the fire authorities and Humane Engine Company, the new Robinson auto pumping engine was accepted. The engine is now on regular duty. The pumping engine was driven to a pond in Burnham Park for the official test. In each test 100-foot lengths of 2½-inch hose were used. Using two lines, with two 1¼-inch nozzles, there were pressures of 90 pounds and 75 pounds at the nozzles and the pump pressure was 125 pounds. There was a suction of eight inches. Through one nozzle 438 gallons of water were thrown a minute and through the other 400 gallons, making a total of 838 gallons per minute. Then three lines with three 1½-inch nozzles were attached to the engine. At each nozzle there was a pressure of 65 pounds. The pump pressure was 105 pounds. There was a 10-inch suction. Three hundred gallons a minute were thrown in each stream, making a total of 900 gallons. In a capacity test, the engine pumped water at the rate of 1,027 gallons per minute, through two 1¼-inch nozzles and one 1½-inch nozzle. With one line having a 1¼-inch nozzle, 440 gal-

lons were pumped a minute. The nozzle pressure was 160 pounds, and the pressure at the pump registered 225 pounds. There was a suction of eight inches. The engine maintained a pump pressure of over 120 pounds for 30 minutes without difficulty. This complies with the regulation of the National Board of Fire Underwriters.

Auto Combination for Peabody, Mass.

Peabody, Mass.—The new auto combination wagon for the fire department built by the Seagrave Company, of Columbus, O., has arrived. It will replace the horse-drawn combination hose and chemical at the Central fire station, and that piece of apparatus will be transferred to Hose 5, in the southern part of the town, where the wagon now in use will be retired from service.

GOVERNMENT AND FINANCE

Bond Sales.

Chicago, Ill.—A public sale of \$1,880,000 of 4 per cent. gold bonds of the city of Chicago, denomination \$1,000, has begun over the counter. This method of disposing of municipal bonds has been tried successfully in other cities, but it is an experiment in Chicago. Notices of the sale say that the bonds are to be sold at par and interest and are a guaranteed investment. The present issue is a part of the bonds approved by the voters at the spring election to recoup the city treasury as the result of the Juul law decision. Mayor Harrison said he believed a certain percentage of municipal bonds hereafter should be made in smaller denominations, some at \$100 and \$200, so that small investors could take advantage of the sale.

Philadelphia, Pa.—With the \$2,200,000 city loan over-subscribed to the extent of at least \$150,000 the last of the bonds have been disposed of. When the last bond was issued there were in the office of the city treasurer at least a score of persons anxious to invest, and letters piled on his desk, containing subscriptions for at least \$100,000. The amount of bonds sold the last day was \$69,400 to forty-three persons. During the first four days of the sale \$2,130,600 worth of the loan was sold. Included in the mail received on the last day was a subscription for \$56,000 coming from a financial institution. This was returned, as the city officials decided that the small investor should be given the preference.

Boom Commission Government.

Irvington, N. J.—Preliminary plans for a public meeting in the interest of a commission form of government for Irvington were made at a meeting of the Commission Government League. It was decided to hold the meeting in the town hall and efforts will be made to obtain former Judge Robert Carey, of Jersey City, as the principal speaker.

Hammonton, N. J.—A commission government boom will soon be launched here. The advocates of commission government believe that many good men who refuse to accept nominations for council would make the necessary sacrifice of time and act as commissioners. In addition to this, they claim one or two very important issues, balloting on which is now denied voters, could be brought before the people through the initiative and referendum.

To Use Voting Machines.

Pittsfield, Mass.—Special ballots are being prepared by the ballot law commission for use in the coming state election by the voters in Pittsfield, the first city to take advantage of the constitutional amendment adopted two years ago, permitting the use of voting machines. The machines were used in Pittsfield a few years ago, but were discarded after the Supreme Court had decreed their use to be unconstitutional.

Public Service Commission to Control All Contracts.

Harrisburg, Pa.—The public service commission has announced that in all contracts between municipalities and public utility companies presented to the commission for approval hereafter there must be inserted a clause to the effect that none of the specific stipulations of the contract shall annul the power of regulation and control vested in

the commission by the act. This provision is inserted so that the commission may have authority to change, on just complaint, rates which may be mentioned in the contract, but which are found to be discriminatory or exorbitant.

City Adopts Single Tax.

Pueblo, Col.—By a majority of about 500 Pueblo has adopted the single tax for municipal purposes. Under the charter amendment adopted, all taxes for city expenses will be raised by the assessment of lots alone without regard to the value of improvements.

RAPID TRANSIT

Traction Companies Consolidated.

Phoenixville, Pa.—The properties and franchises of the gas and electric lighting corporation and the street railway company of this place have been acquired by the American Gas Company with the intention to merge these concerns with the Philadelphia Suburban Gas and Electric Company. In the furtherance of the plan of consolidation the Chester County Public Utilities Company, of West Chester, has also passed into the control of the same hands. The Phoenixville franchises held by the Phoenix Gas and Electric Company of Phoenixville had been controlled by local capital for many years and the hundreds of bondholders in the concern have lost heavily in the transfer. It is predicted that the purchasers will push forward their plan of consolidation and extension and acquire additional trolley franchises in Chester county.

Birmingham, Ala.—Officers of the United Gas & Electric Corporation of New York and of the American Cities Railway Company have arrived in Birmingham for an inspection of the properties here of the Birmingham Railway, Light & Power Company. The United Gas & Electric Corporation is negotiating and will probably take over the American Cities Company, which embraces the street railway systems of Birmingham, Memphis, Nashville, Little Rock and Knoxville. The plan of the United Gas & Electric Corporation is to take over the properties of the American Cities Company, which will include the Birmingham Railway, Light & Power Company of Birmingham, for \$30,000,000. It is then proposed to reorganize the corporation and increase the capital to \$60,000,000 which would permit of great improvements in the physical properties of the subsidiary companies of the cities affected.

No Heat for Cars.

Chicago, Ill.—The millions of passengers who patronize the elevated railroads of this city found no cheer in a decision handed down by the appellate court of Cook county, holding that the city can not compel the roads to heat their cars. Through a technical defect in the municipal ordinance designed to protect the passengers, the court holds that the overhead companies are not bound by the law which makes it obligatory that surface cars be kept at a comfortable temperature.

Omnibus Lines in Berlin.

Berlin, Germany.—The public omnibus service of Berlin is held by one company, which operates 24 horse lines, with 460 busses and 5,000 horses, and 10 autobus lines with 300 busses. The system is an extended one covering a large portion of Greater Berlin. During 1912, 157,600,000 persons were transported, of which 48,000,000 rode in the power busses. During the same year the street cars carried about 500,000,000, the electric elevated and underground system about 60,000,000, and the State owned city steam railway lines (Stadtbahn) about 172,000,000. The population of Greater Berlin is somewhat more than 4,000,000. The total traffic receipts of the omnibus company were \$2,812,000 in 1912. Its capital is \$2,999,000. Until recently it was an independent company. At the beginning of August, however, a deal was put through by which the Grosse Berliner Strassenbahn (owner of most of the street railway lines) and the Hoch-und-Untergrund-bahn-Gesellschaft (owner of the electric elevated and underground system) each purchased stock to the value of about \$950,000 in the omnibus company. This union of interests is

said to be the outgrowth of rather unprofitable competition which has occurred from time to time in the past. It is expected to lead not to a curtailment of omnibus traffic facilities, but rather to a better co-ordination of the whole transportation system and a mutual adjustment of fares, schedules, etc.

MISCELLANEOUS

"Help-the-City" Complaint Bureau.

New York, N. Y.—The Help-Your-City Complaint Bureau, conducted by the Bureau of Municipal Research, received 348 complaints in ten days. Mayor Kline has promised to assist the bureau in handling complaints, and the bureau plans to follow up each one and show that conditions can be improved in this way. By this means it hopes to convince city officials that there is a demand among citizens for a city-operated, city-wide complaint bureau that will receive complaints on all matters concerning city service. Typical complaints were those of a man who protested that conductors should not wet their thumbs with saliva when tearing off transfers, but instead use a sponge which might easily be fastened near the box in which the fares are placed, while two persons called attention to cellar doors which are left opened on the sidewalk throughout the city, making passage dangerous for pedestrians. There is a city ordinance which requires that all such openings shall be guarded by bars or chains, but after an inspection of a few districts fifty-four cases were found in which these cellar openings were inadequately guarded, including fourteen which were positively dangerous. A physician complained that he found difficulty in obtaining certain supplies at the health stations. Investigation showed that the supplies desired were not furnished because the official in charge of their distribution was away on his vacation. Another complaint suggested an inspection of the candy stores on the east side. Samples were purchased by the bureau. The candy was colored red, green, orange and yellow with cheap dyes dangerous to the health of children. Other suggestions received by the bureau were for signs on streets asking persons not to expectorate on the sidewalk, for the installation of automobile ash carts of improved type, for guard rails along surface car tracks at the loop of the Brooklyn Bridge, for a rule compelling lawyers to pay a fee for adjourning cases in inferior civil courts, for smoking cars in the subway, for schools for cure of defective speech, for use of recreation piers in winter, and for the establishment of comfort stations throughout city.

City Law Causes Coal Famine.

Sparta, Wis.—This city of 4,000 population experienced a real freeze-out. All orders received at the three main coal yards of the city were rejected and buyers were notified that it was impossible to operate under the new city ordinance which requires that all coal should be weighed on the city scales. One small coal yard remained but it could not meet the demand. The temperature was below freezing point for some days.

To Copy 3-Cent Dance Halls.

Cleveland, O.—In response to inquiries from officials in New York, Boston, Buffalo, Louisville and other cities. Mr. Meyers, dance hall inspector, has prepared a statement of the arrangement under which Cleveland's municipal three-cent dance halls are operated. He says the Cleveland scheme may be adopted in a few, if not all, of the cities. Since their establishment, two years ago, the municipal dance halls have entertained 175,000 dancers. The net profit this year was approximately \$7,000.

Municipal Work Illegal?

Columbus, O.—Basing his opinion on a statute which requires that contracts for public improvements costing over \$500 must be awarded by competitive bidding, Attorney General Hogan holds that it is illegal for the director of public service to allow individual departments to carry to completion improvement work by hiring day laborers. The opinion rendered by the attorney general, it is declared, will have great political bearing in many cities, in that it will effect to a great extent that end of machine politics affecting the wholesale employment of laborers.

LEGAL NEWS**A Summary and Notes of Recent Decisions—
Rulings of Interest to Municipalities****Sidewalks—Conveyance.**

City of Raleigh v. Durfee.—Owners of land across the street from a rectangular block, which had been used for a market house, have no pecuniary interest in sidewalks around such market house, which will prevent a conveyance of the market house, including the walks, when the municipality is duly authorized to convey the same.—Supreme Court of North Carolina, 79 S. E. R. 434.

Referendum—Delegation of Powers.

Heineman v. City of Alexandria.—The power conferred upon city councils by Pol. Code, to exclude certain lands from the city upon petition by the owners is not legislative and may be reviewed by the courts as provided, even though the resolution denying the petition was ratified by a vote of the people after submission to them under Pol. Code, allowing a referendum on resolutions having the effect of law.—Supreme Court of South Dakota, 143 N. W. R. 291.

Street Improvements—Necessity.

Hardwick v. City of Dalton.—An affidavit of illegality in a proceeding to collect a street improvement assessment, alleging that plaintiff's property had been already provided with proper curbing and that no assessment could therefore be levied against him for recubing the street, was unavailable, since the necessity of an improvement is within the discretion of the municipal authorities, and the exercise thereof will not be disturbed, unless abused.—Supreme Court of Georgia, 79 S. E. R. 553.

Repaving Sidewalks—Powers.

Wallace v. City of Atlanta.—The city of Atlanta issued against Wallace an execution for the cost of repaving a sidewalk upon which abutted property owned by him. This execution was levied upon his property, and he filed an affidavit of illegality, which, upon the trial, was dismissed on demurrer. Held, the mayor and general council of the city of Atlanta, have, under its charter, power and authority to order such pavements or sidewalks laid as they deem proper (Code of Atlanta 1910, section 340, p. 359); and the power to pave includes the power to repave when the sidewalk becomes so much worn or defective as to be no longer useful.—Supreme Court of Georgia, 79 S. E. R. 554.

Railroads—Ordinance—Nuisance.

City of Bushnell v. Chicago, B. & Q. R. R. Co.—Where a railroad had been established in a city, and had erected a freight-house and switch tracks for the benefit of itself and the public in the business district, a city ordinance declaring the maintenance or operation of any railroad siding or switch tracks for setting out, switching, storing, making up, or passing freight cars, freight trains, or engines used therewith, or for loading or unloading freight cars or trains, to be a nuisance, and imposing a penalty for the maintenance thereof, was void as declaring that to be a nuisance which was not so in fact, and in excess of the city's legislative power.—Supreme Court of Illinois, 102 N. E. R. 785.

Quarantine Expenses—Statutes.

Board of Commissioners of Vance County v. Town of Henderson.—Laws 1911, provides for a system of quarantine by which persons can be isolated and treated, and section 15 provides that the duties of municipal health officer shall be identical with those of the county superintendent of health, and that any city may assign the duties of quarantine officer to such health officer. Section 21 provides that all expenses of quarantine shall be borne by the town or county employing a quarantine officer. Held that, unless a city has appointed a quarantine officer as provided thus adopting a system of quarantine of its own, it is not liable for quarantine expenses, but such expense is to be borne by the county.—Supreme Court of North Carolina, 79 S. E. R. 442.

Officers—Trial on Charges.

O'Neill v. City of New York.—Where charges preferred against the chief inspector of the bureau of buildings in the city of New York were referred to the superintendent of buildings appointed to try the same, a decision of the borough president that the inspector be fined a sum equivalent to the salary due him for the time of his suspension was without legal effect, though the superintendent, without making any finding of his own, notified the inspector of such decision.—New York Supreme Court, 143 N. Y. S. 430.

Assessment Proceedings—Due Process of Law.

In re sewer in Kissel Ave. and Brighton Boulevard in City of New York.—Due process of law requires that every person to be assessed for the purpose of taxation be given an opportunity to be heard at some stage of the proceeding. The decisions of the board of estimate and apportionment of the city of New York are not reviewable by the courts, when made by the board in the exercise of the legislative power delegated to it by the legislature. The legislature has power to fix an area of assessment without either notice or hearing to the people affected by that area, and also the power to delegate that function to subordinate governmental agencies.—New York Supreme Court, 143 N. Y. S. 467.

Sewers—Surface Water—Drainage.

Dyer v. City of South Portland.—Rev. St. provides that after a public drain has been constructed and any person has paid for connecting with it, it shall be constantly maintained by the town, so as to afford sufficient flow for all "drainage entitled to pass through it," and on default of the town, any person entitled to drainage through it may have an action against the town for any damages. One section provides in general terms for the construction of sewers, and others provide for connections with the sewer, assessments, etc. Held, that the "drainage" entitled to pass through a sewer is the sewage which the adjoining property owner is entitled to drain through the sewer, and does not include surface water, and the town is not liable to an adjoining owner for damages caused by an overflow of surface water due to the town's negligence in failing to keep catch-basins open so as to allow the water to drain away.—Supreme Judicial Court of Maine, 88 A. R. 398.

**Contract for Building Asphalt Plant—Authority of Agent—
Responsibility for Delays.**

Hetherington-Berner Co. v. City of Spokane.—Where the secretary of the board of public works of a city had been the spokesman of that body, which had represented the city in making the contract in issue throughout all the negotiations for the equipment of an asphalt plant, all communications being had through him, it was evidence that he had authority to speak for and bind the city, on which the contractor could rely as to the truth of representations as to when the city would start work on the foundation on which the contractor was to erect the superstructure. Where a city allowed the secretary of the board of public works to conduct all the negotiations incident to a contract for the equipment of an asphalt plant, it could not afterwards question the validity of his acts, even upon an affirmative showing that he exceeded his authority. In an action by a contractor engaged to equip an asphalt plant for a municipality, where the contractor claimed damages for losses sustained by the municipality's failure to provide the foundation and erect the roof within the time it had assured the contractor's agent that it would be erected, thus keeping the contractor's men idle, evidence that the contractor's representative told the secretary of the board of public works that the time of the city's commencing the foundation was immaterial so long as the contractor was not held liable for the penalty for failing to complete on time was properly rejected, for the reason that the cause of action was not based on the failure of the city to begin work at any particular time, but on its failure to have the premises ready for the contractor's men at the time it represented.—Supreme Court of Washington, 135 P. R. 484.

THE MUNICIPAL INDEX

In Which Are Listed and Classified by Subjects All Articles Treating of Municipal Topics Which Have Appeared During the Past Month in the Leading Periodicals.

It is our purpose to give in the second issue of each month a list of all articles of any length or importance which have appeared in all the American periodicals and the leading English, French and German ones, dealing more or less directly with municipal matters. The index is kept up to date, and the month of literature covered each time will be brought up to within two or three days of publication. Our chief object in this is to keep our readers in touch with all the current literature on municipal matters. In furtherance of this we will furnish any of the articles listed in the index for the price named after each article, except that where an article is continued in two or three issues of the paper, the price given is for each of said issues. In addition to the titles where these are not sufficiently descriptive or where the article is of sufficient importance, a brief statement of its contents is added. The length also is given, and the name of the author when it is a contributed article.

ROADS AND PAVEMENTS.

Highways in Idaho. By J. P. Congden. Idaho Society of Engineers. 30 pp., Journal, June.

Construction, Highway, in Southwest Virginia. By C. B. Scott, assistant state highway engineer. Ill., 3 pp., Southern Good Roads, October. 10 cts.

Lessons from the International Road Congress. By Col. W. D. Sohier, chairman Massachusetts Highway Committee. 2 1/2 pp., Abs., American Road Congress Engineering Record, October 11. 10 cts.

Methods of Rebuilding a Wagon Road in Eastern Maine. By D. J. Hauer. Ill., 3 1/2 pp., The Contractor, October 1. 20 cts.

Road Building System of Dillon County, South Carolina. By E. M. Wayland. Ill., 2 1/2 pp., Southern Good Roads, October. 10 cts.

Embankment in Road Construction. Rolling in thin layers; the occurrence of settlement; illustration of practices. By G. C. Warren. American Society of Municipal Improvements. Ill., 2 1/2 pp., Municipal Journal, October 30. 10 cts.

Location, Economics of Highway; Formulas and methods Employed. Abs., by Prof. E. Maslik. International Road Congress. Ill., 5 pp., Engineering and Contracting, October 29. 10 cts.

Materials Used in Road Construction, The Testing of. By J. G. Ross. Ill., 4 pp., Contract Record, November 5. 10 cts.

Systematizing Purchases of Road Material and Equipments. Abs. By H. G. Shirley, chief engineer State Road Commission, Maryland. American Road Congress. 1/2 pp., Engineering Record, October 11. 10 cts.

Experimental Road, Chevy Chase. Methods and figures in concrete construction. Ill., 3 pp., Cement Era, October. 10 cts.

Financing a System of State Highways. By S. E. Bradt, chairman Good Roads Committee, Illinois Bankers' Assn. 1 p., The Roadmaker, August. 10 cts.

Federal Aid in Road Construction. Abs. By D. F. Houston, Secretary of Agriculture, American Road Congress. 1/2 pp., Engineering Record, October 11. 10 cts.

State Aid for Roads. By J. T. Boshell, highway engineer, U. S. Office Public Roads; Indiana Engineering Society. 4 1/2 pp., Proceedings, 1913. 50 cts.

Tar in Road Construction. Use in England. 1 p., Good Roads, Canada, October. 10 cts.

General Directions and Specifications Relating to the Tar Treatments of Roads. Specifications of the Road Board, London. 2 1/2 pp., Contract Journal, September 24. 15 cts.

Hot Mixer at Madison, Wis. Ill., 1/2 p., Municipal Journal, October 9. 10 cts.

Brick Paving for Country Roads. Preparation, construction and costs. Rep. By V. M. Peirce and C. H. Moorefield, Department of Agriculture. 3 1/2 pp., Engineering Magazine, November. 25 cts.

Low-Cost Brick Highways. County roads without curbing. Ill., 1 p., Brick and Clay Record, October 7. 20 cts.

Tests of Concrete and Brick Pavements. Details of types tested with "Determinator." Statement of results. American Road Congress. Ill., 1 3-3 pp., Engineering Record, October 25. 10 cts.

Brick as a Wearing Surface. 3 pp., Good Roads, Canada, October. 10 cts.

Brick Road Construction. Abs. By J. M. McCleary, road engineer, Cuyahoga County, Ohio. American Road Congress. 1/2 p., Engineering Record, October 11. 10 cts.

Concrete Roads, Wayne County. Abs. By F. F. Rogers, state highway commissioner of Michigan. American Road Congress. 1/2 p., Engineering Record, October 11. 10 cts.

Concrete Roads near Philadelphia. By

G. D. Steele. Ill., 3 pp., Cement Era, October. 10 cts.

Concrete Highways on Island of Montreal. 1 p., Good Roads Canada, October. 10 cts.

Concrete as a Road Material. By E. S. Hanson. 3 pp., Cement Era, October. 10 cts.

The Truth about Wayne County Roads. Results of investigation. By P. E. Green, M. A. S. C. E. Ill., 10 pp., Brick and Clay Record, October 7. 20 cts.

Find Concrete Roads a Failure. By W. R. Hayes, Board of Trustees, Des Plaines. Ill., 1 1/2 pp., Brick and Clay Record, October 7. 20 cts.

Shell Roads of Texas, The Splendid. By C. V. Hull. Ill., 1 p., Road Maker, October. 10 cts.

Macadam, Treatment of Raveled. Ravelling due to improper construction, overload and neglect. Importance of fixed and operating charges; methods of treatment. Abs. Col. E. A. Stevens, state highway commissioner of New Jersey American Road Congress. 1 1/2 pp., Municipal Journal, October 16. 10 cts. 1/2 p., Engineering Record, October 11. 10 cts.

Contracts, Legal Suggestions Respecting Road. Abs. By W. L. Bowman, New York Bar. American Road Congress. 1/2 p., Engineering Record, October 11. 10 cts.

How a Contractor Should Proceed to Plan a Wagon Road Contract. 1 1/2 pp., The Contractor, October 1. 20 cts.

Equipment, Upkeep of Road. Abs. By D. J. Hauer, American Road Congress. 1/2 p., Municipal Journal, October 23. 10 cts.

Administration in New York, The Prospects of State Highway. Ed. 1/2 p., Engineering News, October 23. 15 cts.

Rules of Highways, Kansas. 1/2 p., Road Maker, September. 10 cts.

Glossary of Road Terms. By H. P. Boulnois, M. I. C. E., F. S. I., member of Advisory Committee of H. M. Road Board. 5 1/2 pp., Surveyor, October 24. 15 cts.

Units, Paving. Ed. 1/2 p., Municipal Journal, October 16. 10 cts.

What Constitutes Paving? Ed. 1/4 p., Municipal Journal, October 9. 10 cts.

The Streets of New York City. General discussion on conditions, traffic and construction. By F. F. Blachly. 11 pp., National Municipal Review, October. \$1.25.

Paving Street Car Tracks, Tulsa, Okla. 1/2 p., Municipal Journal, October 9. 10 cts.

Fifth Avenue Widening and Repaving, New York. Roadway widened 15 feet and repaved with asphalt. Ill., 2 1/2 pp., Municipal Journal, October 9. 10 cts.

Observations on European Paving Methods and Materials. By E. H. Chomes, assistant engineer of New York. 1 1/2 pp., Engineering and Contracting, October 29. 10 cts.

Asphalt, Sheet. Advantages; typical specifications. By E. A. James, B. A. Ill., 2 pp., Good Roads Canada, October. 10 cts.

Sidewalk Construction and Maintenance, The Control of City work; supervision; bonding contractors; inspection. By A. P. Folwell, American Society of Municipal Improvements. 3 1/2 pp., Contract Record, October 22. 10 cts.

SEWERAGE AND SANITATION.

Sewerage Scheme, Greater Vancouver Joint. Organizing and financing project for draining 55,600 acres with data on rainfall and float tests of dispersion at outfall. Ill., 2 1/2 pp., Engineering Record, October 25. 10 cts.

Grades, Flat Sewer. Ed. 1/2 p., Municipal Journal, October 23. 10 cts.

Separate and Combined Sewers in Their Relations to the Disposal of Sewage. Topographical consideration; silt chambers. By J. H. Gregory, American So-

cieties of Municipal Improvements. 3 pp., Contract Record, October 15. 10 cts. 2 pp., Engineering and Contrancing, October 15. 10 cts.

Traps, Advantages and Disadvantages of Intercepting. By W. E. Woollam. Institution of Municipal Engineers. 1/2 p., Surveyor, October 24. 15 cts.

Rat Proofing a Municipal Sewer System. Report of an investigation of sewer system of San Francisco; catch basin method; costs. By F. Simpson, past assistant surgeon, U. S. Public Health Service. 8 pp., U. S. Public Health Reports, October 21.

Rainfall and its Runoff Into Sewers. A Brief Discussion of Formulas and tables. By S. A. Greeley, Western Society of Engineers. Ill., 41 pp., Journal, September. 50 cts.

Tunnelling, An Example of Difficult. Combined use of shield and compressed air in connection with intercepting sewers for the city of Glasgow. By J. M. M. Greig, A. M. I. C. E., city engineer's department, Toronto, Canada. Ill., 3 pp., Canadian Engineer, October 16. 15 cts.

House or "Sanitary" Sewers. Ed. 1/2 p., Municipal Journal, October 30. 10 cts.

Purification of Sewage Effluent. Abs. By G. J. Fowler and E. M. Mumford, Royal Sanitary Institute, England. 1 1/2 pp., Canadian Engineer, October 9. 10 cts.

Springfield Sewage Disposal Plant, Settling tanks and intermittent filters; mechanical distributor; novel form of tanks; vertical circulation; final settling basin; sluice bed. By A. Potter, American Society of Municipal Improvements. Ill., 5 1/2 pp., Municipal Journal, October 23. 10 cts. 2 pp., October 30.

A Review of Good Practice in Sewage Collection and Disposal. Report of Committee of American Public Health Association. Abs. 3 1/2 pp., Contract Record, October 29. 10 cts.

Cheltenham Sewage Purification Works. Detailed plans and methods. By J. S. Pickering, M. I. C. E., Borough Engineer. Association of Managers of Sewage Disposal Works. 3 pp., Surveyor, October 10. 15 cts.

Tiverton Sewage Disposal Works. Plans, methods and data. By L. D. Holgate, M. R. S. I., chemist and manager. Institution of Municipal and County Engineers. 3 1/2 pp., The Surveyor, October 3. 15 cts.

St. John's Sewage Disposal Works. Plans, details and operation. By C. Turton, engineer and surveyor, East Grinstead Rural District Council. Institution of Municipal Engineers. 3 1/2 pp., Surveyor, October 24. 15 cts.

Report on Sewage Disposal in the city of Indianapolis. By H. W. Klausmann, city engineer. Indiana Engineering Society. 4 1/2 pp., Proceedings, 1913. 50 cts.

The Julietta Sewage Disposal Plant. Design and use of Imhoff tanks and sand filters. By C. Brosmann, Indiana Engineering Society. 6 1/2 pp., Proceedings, 1913. 50 cts.

Sewage Disposal in New Jersey. Data of 144 plants; operating features; chemicals used; rates of filtration; tables. 2 1/2 pp., Municipal Journal, October 9; 1 1/2 pp., October 16. 10 cts.

Travelers for Sewage Distribution. Abs. By A. Potter, American Society of Municipal Improvements. Ill., 1 1/2 pp., Engineering Record, October 18. 10 cts.

The Clarification of Sewage in Slate Beds. Translated from "Technisches Ge-meindeblatt." Treatment of sludge and liquids in slate beds at Essen, Germany. By Dr. Bach. Ill., 3 1/2 pp., Engineering News, October 2. 15 cts.

Obligations of the State to a Municipality which has been Ordered to Dispose of its Sewage Properly by the State Board of Health. By C. J. Wigley, Engineer N. J. State Board of Health. American Society of Municipal Improvements.

1½ pp., Engineering and Contracting, October 29. 10 cts.

Why Not Sink Imhoff Tanks as Open Caisson? By E. B. Van de Greyen. Ill., ½ p., Engineering Record, October 18. 10 cts.

Design of Imhoff Sewage Tanks. Length and cross section of settling compartment; velocity of flow; detention period; scum boards and baffles. By L. C. Frank and F. Fries. Ill., 8 pp., Engineering Record, October 25; November 1; November 8. 10 cts.

Pollution of the Niagara River. Report on the Findings of the International Joint Commission. 1½ pp., Contract Record, October 15. 10 cts.

A Sanitary Survey of the Wabash River. By J. Craven, Indiana State Board of Health. Indiana Engineering Society. 4 pp., Proceedings, 1913. 50 cts.

Examination of River Bottoms at Philadelphia in Connection with Sewage Disposal Studies. Methods and results. By W. L. Stevenson, assistant engineer of sewage disposal, Philadelphia. American Public Health Assn. Ill., 2 pp., Engineering and Contracting, November 29. 10 cts.

Sanitation at Mining Villages in the Birmingham District, Alabama. By D. E. Woodbridge. 27 pp., Ill., Technical Paper, Department of Interior, Bureau of Mines, 1913.

Milk Supply. The Purity of the Conditions in London. By A. Corbett-Smith. 4 pp., Journal of State Medicine, London, Eng. 60 cts.

School Hygiene. Report of Fourth International Congress on School Hygiene, Buffalo, N. Y., August 25-30, 1913. By J. W. Schereschewsky, Surgeon, U. S. Public Health Service. 4½ pp., U. S. Public Health Report, October 3.

Pellagra in Mississippi. Prevalence and Geographical distribution. By C. H. Lavinder, Surgeon, U. S. Public Health Service. 3½ pp., U. S. Public Health Report, October 3.

Eugenics Education to Public Health, The Relation of. By Mrs. A. C. Cotto, honorary secretary, Eugenics Education Society. Paris Congress and Public Health. 6½ pp., Journal of State Medicine, London, Eng. 60 cts.

Business Sense in Health Matters. Ed., ½ p., Municipal Journal, October 23. 10 cts.

WATER SUPPLY.

Water Works, Chicago. History, plants, metering, consumption. By J. Erickson, M. W. S. E., Western Society of Engineers, Ill., 34 pp., Journal, October, 50 cts.

Ottawa Water Supply Project. Ill., 4½ pp., Canadian Engineer, October 16. 15 cts.

Ottawa Water Supply. A thirty-one mile lake scheme at a cost of eight million dollars. Description of plant and estimated costs. Ill., 3½ pp., Contract Record, October 29. 10 cts.

Watershed, The Yield of a Kentucky. Record of twenty-six years; curves and data, of runoff and storage. By G. L. Thon and L. R. Howson. Ill., 20 pp., Journal, Western Society of Engineers, September, 50 cts.

Proposed Methods and Estimated Unit Costs of Reforesting the Cedar River Watershed of the Seattle Water Works. 3 pp., Engineering and Contracting, October 22. 10 cts.

Reservoir Construction, Water Tightness in. By A. Potter. 2 pp., American City, November, 25 cts.

Well Water Supply, A Shallow. Ballston Spa, N. Y. Ill., ½ p., Municipal Journal, October 16. 10 cts.

Protecting Drinking Water. The use of concrete wall platforms. Ill., 2½ pp., Cement, September. 10 cts.

Intake Tower Tunnel and Stream Chamber of the St. Louis Water Department, Structural Features of the New. Detailed plans. Ill., 4½ pp., Engineering and Contracting, October 29. 10 cts.

Current Meters, The Rating of. Use of curves and rating tables. By J. B. Brown. Ill., 2 pp., Engineering News, October 9. 15 cts.

Pumping Engine, Pittsburgh's Large. Seven million gallon pumping engine and water works. Cost of equipment. Ill., 1 p., Power, October 28. 5 cts.

Suction Gas Producer Pumping Engine vs. Compound Condensing Corliss Crank and Fly Wheel Pumping Engine. Cost of operation and fixed charges, based on five years' operating experience. By J. E. Gibson and S. H. Wright. Engineers' Club of Philadelphia. Ill., 18 pp., Proceedings, October. 50 cts.

Aqueduct, The Winnipeg Shoal Lake. A ninety-five mile water supply line. Structural details. Ill., 5 pp., Canadian Engineer, October 23. 15 cts.

High-Pressure Aqueduct Shaft Cap. Cast steel cover to resist 410 feet head in Hudson river siphon tunnel at Catskill aqueduct. Ill., 1 p., Engineering Record, October 11. 10 cts.

Camp Hill View Sanitation, Catskill Aqueduct. By A. W. Tidd, assistant engineer, Board of Water Supply. 7½ pp., Engineering News, October 16. 15 cts.

Construction of Los Angeles Aqueduct. The \$24,500,000 water supply project, involving 200 miles of conduits and pipes. By W. W. Hurlbut, Engineering Department, Bureau of Water Works, Los Angeles. Ill., 5 pp., Engineering Record, November 1. 10 cts.

Tower, The Water. Methods of operation of spring hoist; the deck turret; advantages. By W. E. Patterson. Ill., 1 p., Municipal Journal, October 9. 10 cts.

Bends, Loss of Head in. Curves and data. Abs. By W. E. Fuller, New England Water Works Assn. 1 p., Municipal Journal, October 23. 10 cts.

Hydrants in Louisville, Free. ½ p., Municipal Journal, October 9. 10 cts.

Purification System, Panama Water Supply. Large storage capacity; uses of pre-coagulation; aeration; sedimentation and mechanical filtration. By A. T. Nabstdt. Ill., 5½ pp., Engineering News, October 2. 15 cts.

Filtration, Chemical and Biological Effect of Water. Elimination of pathogenic bacteria; filter film; chemical treatment. By H. W. Cowan. 4½ pp., Canadian Engineer, October 2. 10 cts.

New Filtration Plant at Dallas. Ill., ½ p., Municipal Journal, October 23. 10 cts.

Results of Mechanical Gravity Filtration at Saskatoon, Sask. Description of plant and sterilization, with statistics. By G. T. Clark, city engineer. 2½ pp., Contract Record, October 1. 15 cts.

St. Louis Mechanical Water Filters. Sedimentation and coagulation; rapid sand filters. By E. E. Wall, water commissioner. Ill., 5½ pp., Engineering News, October 23. 15 cts.

Sterilization by Chemical Methods, History of Water. Use of oxidizing agents, ozone and chlorine. By S. Riedel, D. Sc., F. I. C., International Congress on Hygiene and Demography. 3 pp., Contract Record, October 29. 10 cts.

The Use of Calcium Chlorite in Water Purification. By Prof. C. M. Hilliard, assistant professor sanitary science, Purdue University. Indiana Engineering Society. 4½ pp., Proceedings, 1913. 50 cts.

Improved Management of Water Works. Supervision, operation records, accounts. By P. Hansen, Engineer, Illinois Water Survey. Western Society of Engineers. 6½ pp., Journal, September, 50 cts.

Care and Maintenance of Water Meters. Methods used by Passaic Water Company; records for overhauling; effects on revenue. By A. W. Cuddeback, Supt. and Engineer. Abs., New England Water Works Assn. Ill., 2½ pp., Municipal Journal, October 16. 10 cts.

STREET LIGHTING AND POWER PLANTS.

Lighting the Streets of Baltimore. Ill., 2 pp., American City, November, 25 cts.

Combined Marker and Street Light. By A. Marple. Ill., ½ p., Municipal Journal, October 16. 10 cts.

Lamps, Carbon and Impregnated Electrodes for Arc. Composition, methods of manufacture, operating characteristics, life and light of electrodes designed for modern street lighting. By A. T. Baldwin. Ill., 4½ pp., Electrical World, October 18. 10 cts.

Wires in City Streets, Potential of Overhead. Abs. By C. W. Pike, Chief of Electrical Bureau, Philadelphia. International Association of Municipal Electricians. ¾ p., Fire and Water Engineering, October 22. 10 cts.

Gas production, Carbonization in Bulk for. Plans and methods in Vienna, Austria. By G. S. Cooper, B. Sc., F. C. S., A. K. C., M. I. M. E. Ill., 3½ pp., Gas Age, October 15. 20 cts.

Weights, Abs., By L. H. Conklin, Pennsylvania Electrical Association. 2½ pp., Electrical Review, October 4. 10 cts.

Society, Illuminating Engineering. Report of Seventh Annual Convention, Pittsburgh, Pa., September 22-25. Abstracts from papers. 7 pp., Electrical Review, October 4. 10 cts.

Indiana Electric Light Association. Convention at Indianapolis, September

24-25. 4½ pp., Electrical Review, October 4. 10 cts.

Illumination from the Standpoint of Medical Sociology. By P. W. Cobb, B. S. M. D., American Academy of Medicine. 12½ pp., bulletin, October. 20 cts.

The Status of the Lighting Art. Means of illumination, color and intensities. By P. S. Millar, president Illuminating Engineering Society. Illuminating Engineering Society. 4½ pp., American Gas Light Journal, October 13. 10 cts.

The Lighting of Public Buildings. By J. R. Cravath. Ill., 5 pp., American City, November, 25 cts.

Hydroelectric Power Development near Calgary, Alta. By W. W. Hay, B. Sc. Ill., 4 pp., Contract Record, October 1. 15 cts.

Tata Hydroelectric Development. High-head power station storage reservoirs supplied. Details of dams, power house and transmission line. Ill., 2½ pp., Engineering Record, November 8. 10 cts.

White Salmon River Power Development. Medium-head hydroelectric station served by wood-stave-pipe line. Ill., 3 pp., Engineering Record, October 11. 10 cts.

A Twenty-Five Thousand K. W. Turbine Installation in Chicago. Ill., 4 pp., Power, November 4. 5 cts.

Steam Meter. The Venturi. Construction and operation. By C. G. Richardson. 3 pp., Power, October 7. 5 cts.

Cooling Towers for the Power Plant. Types and construction; distribution of water and air, and principles of operation. By E. Brown. Ill., 2½ pp., Power, October 7. 5 cts.

FIRE DEPARTMENT.

Fire Department, The Minneapolis. By W. L. Scott, secretary. Ill., 1 p., Fire & Water Engineering, October 29. 10 cts.

Fire Equipment of the Past and Present. By A. B. Jones, Massachusetts State Firemen's Convention. 1 p., Fire & Water Engineering, October 22. 10 cts.

Motor Fire Appliances Used in London. By A. R. Dyer, London Fire Brigade, International Association of Fire Engineers. 1½ pp., Fire & Water Engineering, October 15. 10 cts.

Motor Driven Fire Apparatus—Its Construction, Operation and Care. Non-technical exposition of various types of automobiles. Ill., 3½ pp., Fire & Water Engineering, October 15. 10 cts.

Analysis of Action of Gasoline Motor-Propelled Pumps at Recent Trials in New York City. By V. W. Page, M. E. 1 p., Fire & Water Engineering, October 29. 10 cts.

Fire Alarm Systems. Plain interfering, non-interfering and non-interfering succession boxes. Semi-automatic and automatic systems. Abs. By G. L. Fickett, superintendent Fire Alarm System, Boston, Mass. Massachusetts State Firemen's Assn. 1 p., Municipal Journal, October 23. 10 cts.

Battery Equipment for Fire Alarm Offices. Abs. By G. McD. Johns, superintendent Fire & Police Alarm Telegraph, St. Louis, Mo. International Association of Municipal Electricians. ¾ p., Fire & Water Engineering, October 8. 10 cts.

Fire Alarm Systems for Small Towns. 2 pp., Safety Engineering, October 25 cts.

High Pressure Systems. By C. Goldsmith, assistant engineer public works, Boston. Massachusetts State Firemen's Association. ½ p., Municipal Journal, October 9. 10 cts.

The High Pressure Fire Service, Philadelphia. Installation details and costs. By J. E. Codman. 11½ pp., Engineers' Club of Philadelphia. Proceedings, October 15. 50 cts.

Fire Peril in Office Buildings. Underwriters' laws and protection methods. 5 pp., Safety Engineering, October 25 cts.

Fire Escapes in Towns and Cities. Establishment of, through State Forestry Associations. By H. A. Reynolds, secretary Massachusetts Forestry Assn. 3 pp., American City, November, 25 cts.

Fire Prevention Congress. Report of National Fire Prevention Congress, Philadelphia. Abstract of papers. 1½ pp., Fire & Water Engineering, October 22. 10 cts.

National Fire Prevention Convention. Report 1½ pp., Fireman's Herald, October 11. 5 cts.

Planning Fireproof School Houses. 2 pp., American City, November. 25 cts.

Fire Prevention and Fire Marshals. 1 p., Fire and Water Engineering, October 8. 10 cts.

Fire Protection for Schools. State laws; question of floor space and fire walls; Rep. Russell Sage Foundation. Ill., 2 pp., Fireman's Herald, October 11. 5 cts.

Massachusetts State Firemen's Convention. Thirty-fourth meeting at New Bedford. Report. Ill., 4 pp., Firemen's Herald, October 4. 5 cts.

Insurance, The Regulation of Fire. By W. C. Guerin, Chief New York Fire Prevention Bureau. National Fire Prevention Congress. 1 p., Fire & Water Engineering, October 29. 10 cts.

GOVERNMENT AND FINANCE.

Commission Government for Cities: Election of Specific Officers vs. Selection at Random. By L. J. Johnson, Harvard University. 3 1/2 pp., National Municipal Review, October. \$1.25.

City Manager Plan of Government for Dayton. By L. V. Upson, director, Dayton Bureau of Municipal Research. 5 pp., National Municipal Review, October. \$1.25.

The City Manager Plan at Clarinda, Iowa. 1/2 p., Engineering News, October 23. 15 cts.

Charter. The Minneapolis. By H. Strong. 3 pp., National Municipal Review, October. \$1.25.

The Boston City Charter. History, constitution and discussion. By G. R. Nutter. 14 pp., National Municipal Review, October. \$1.25.

Home Rule Programme in New York. Legislative Interference in Municipal Affairs and. By L. A. Tanger, Citizens Union, New York City. 17 pp., National Municipal Review, October. \$1.25.

Elections in Des Moines, Iowa. Municipal. By J. R. Hanna, Mayor. 4 pp., National Municipal Review, October. \$1.25.

Primary Election Expenses in Chicago. By H. L. Eakes. 3 pp., National Municipal Review, October. \$1.25.

Voters' League and their Critical Work. By D. R. Fox, Columbia University. 6 1/2 pp., National Municipal Review, October. \$1.25.

Municipal Ownership. Conditions in Canada. 1 1/4 p., Municipal World, November. 10 cts.

Public Works in Cities, Scientific Management in the Civil Service; purchase of supplies; labor and contract system. By G. C. Emerson. 12 pp., National Municipal Review, October. \$1.25.

Business Methods in Municipal Works. Record of operations of Department of Public Works of Philadelphia under Mayor Blankenburg. 64 pp., Department of Public Works, 1913.

Municipal Purchasing and Storekeeping. Why municipalities should centralize in this department; plan of Baltimore; results in Sacramento. By W. T. Childs, deputy city comptroller of Baltimore. 1 1/2 pp., Municipal Journal, October 30. 10 cts.

Public Service. Rate Making. By Dr. A. C. Humphreys, president Institute of Technology. Pacific Coast Gas Association. 2 1/2 pp., American Gas Light Journal, October 6. 10 cts.

Monopoly and Rates Discrimination. Ed. 1 p., Electrical World, October 25. 10 cts.

Legislation Affecting Public Utilities. By H. V. Bozell. Gas, Electric and Street Railway Association of Oklahoma. Abs. 4 pp., Electrical Review, November 1. 10 cts.

Public Property Public, Keeping. Recovering street space. 1/2 p., Municipal Journal, October 23. 10 cts.

Streets, The Ownership of. Ed. 1/2 p., Municipal Journal, October 9. 10 cts.

Control of Sidewalk Construction and Maintenance. By A. P. Folwell. American Society of Municipal Improvements. 3 pp., American City, November. 25 cts.

Excess Condemnation an Important Municipal Issue. Ed. 1/2 p., Engineering Record, November 1. 10 cts.

Billboard Campaign. A Pittsburgh. By H. M. Dermitt, secretary Civic Club. 2 pp., National Municipal Review, October. \$1.25.

Inspector Problem, Solving the. Good service from political appointees in Trenton, N. J. By H. F. Harris, assistant engineer of streets. 1 p., Municipal Journal, October 16. 10 cts.

Taxation, Housing and Town Planning. By J. Fels. International Town Planning Conference. 3 pp., American City, November. 25 cts.

License. Legislation. The Status of Liquor. By J. Koren. 9 1/2 pp., National Municipal Review, October. \$1.25.

Securities and a Retrospect. Municipal. By E. M. Wood, deputy municipal commissioner. 1 p., Western Municipal News, October. 10 cts.

City Deposits. Interest, with Security. By A. T. Burns, general secretary, Pittsburgh Civic Commission. 1 1/2 pp., American City, November. 25 cts.

REFUSE DISPOSAL AND STREET CLEANING.

Street Cleaning in American Cities. Methods and costs in several cities; tables. 6 1/2 pp., Municipal Journal, November 6. 10 cts.

Street Cleaning Records. 1 1/2 pp., Municipal Journal, November 6. 10 cts.

Street Cleansing; Refuse and Sewage Disposal. Figures for year's work in Glasgow, Scotland. 1 p., Municipal Journal, England, October 24. 10 cts.

Street Cleaning in Several Cities. Keeping records of contract cleaning in Wilkes-Barre; methods of cleaning in Omaha, Columbus and Schenectady; frequency of cleaning. 2 1/2 pp., Municipal Journal, November 6. 10 cts.

Local Rubbish Burners. Use in Glendale, Cal. Ill., 1/2 p., Municipal Journal, November 6. 10 cts.

Records of Street Cleaning in Washington. Recording unit quantities; subdivision of areas; forms used on street and in office; relative cost of street work and hand patrol. By J. W. Paxton, superintendent of street cleaning in Washington, D. C. Ill., 4 pp., Municipal Journal, November 6. 10 cts.

Removing Snow from Sidewalks. Ed. 1/2 p., Municipal Journal, November 6. 10 cts.

Catch Basin Cleaning. Motor truck with pump for removing water; increased capacity and speed. By G. A. Carpenter, city engineer of Pawtucket, R. I. Ill., 1 1/2 pp., Municipal Journal, November 6. 10 cts.

Refuse Collection Wagons. Use in various cities. 1/2 p., Municipal Journal, November 6. 10 cts.

Columbus Refuse Collection Notes. 1/2 p., Municipal Journal, November 6. 10 cts.

Day or Night Collection of Wastes. Abs. By W. H. Edwards, commissioner of street cleaning, New York City. American Public Health Association. 1/2 p., Municipal Journal, November 6. 10 cts.

Wagons for Collecting Refuse. Ed. 1/2 p., Municipal Journal, November 6. 10 cts.

Garbage Collection and Paper Baling. Duplicate can system of collection; baling paper with portable press at Evanston, Ill. By H. H. Sherer, superintendent of streets. Ill., 2 1/2 pp., Municipal Journal, November 6. 10 cts.

Wrapping Garbage in Trenton. Insures drainage; decreases cost of incineration. By J. T. McClain, Superintendent Department of Garbage and Ashes. 1 p., Municipal Journal, November 6. 10 cts.

Collection of Garbage and Ashes. Ed. 1/2 p., Municipal Journal, November 6. 10 cts.

Disposal of Municipal Refuse. Methods of disposal in 100 cities; reduction at Columbus, Ohio; weights of different classes of refuse in several cities; tables; operating costs. 8 pp., Municipal Journal, November 6. 10 cts.

Four Garbage-Disposal Contracts. Ed. 1/2 p., Engineering News, October 9. 15 cts.

Public Refuse Destruction a Municipal Asset, not a Liability. General discussion of methods. 2 1/2 pp., Fire & Water Engineering, October 15. 10 cts. By J. B. Ryder, C. E.

A Summary of the Arguments and Conclusions of the Members of the Board of Appraisers of the Chicago Garbage Reduction Plant. 5 pp., Engineering and Contracting, October 22. 10 cts.

Garbage-Plant Appraisal in Chicago. Abstract of appraiser's opinion. 1 p., Engineering Record, October 25. 10 cts.

Uniform Accounts for Refuse Disposal. By L. G. Powers, Chief Statistician, U. S. Bureau of Census. 3 pp., American City, November. 25 cts.

TRAFFIC AND TRANSPORTATION.

Traction Problem, Cincinnati's. By E. H. Pendleton. 12 pp., National Municipal Review, October. \$1.25.

Urban Passenger Transportation. Costs and management. By J. B. Hamilton, manager Leeds Corporation Tramways. Municipal Tramways Association. 6 pp., Municipal Journal, England, October 3. 10 cts.

Municipal Tramways Association. Twelfth Conference, Sheffield, England. Abstract of papers. 6 1/2 pp., Municipal Journal, London, September 26. 10 cts.

Requirements of Control on Modern Street Railways. By H. C. Pease. 3 1/2 pp., General Electric Review, November. 20 cts.

Vehicles for Municipal Service, Electric. Advantages and costs. By J. W. Beauchamp, M.I.E.E., engineer, West Ham Corporation electric supply. Ill., 2 pp., Municipal Journal, England, October 17. 10 cts.

The Storage Battery Car. Electrical and operating characteristics. By G. W. Remington. Ill., 7 pp., General Electric Review, November. 20 cts.

Control Equipment for D. C. Locomotives on Interurban Railways. Electrical and mechanical details. Ill., 10 1/2 pp., General Electric Review, November. 20 cts.

Street Car Lighting. Data and distribution diagrams. By L. C. Porter. Ill., 2 1/2 pp., Lighting Journal, October. 10 cts.

Cost of Rush Hour Service. Charges due to peak load congestion; methods for determining. By A. S. Ritchie, professor of electric railway engineering, Worcester polytechnic Institute. 5 pp., Aera, October. 20 cts.

Subway Tunnel, Concreting the Harlem River. Enclosing the submerged four-track tubes with concrete. Ill., 1 p., Engineering Record, October 11. 10 cts.

Convention of the American Electric Railway and Allied Associations. Annual Report and abstracts of papers. 5 pp., Engineering News, October 23. 15 cts.

The Electric Railway Associations' Conventions, Atlantic City. October 13-17. Abstract of papers. 2 1/2 pp., Electrical Review, October 25. 10 cts.

STRUCTURES AND MATERIALS.

Testing Materials, Present Methods of. The work of International Testing Association. By Prof. H. Hubert, Department of Engineering, Liege University. Iron and Steel Institute, Brussels. 4 pp., Canadian Engineer, October 30. 10 cts.

Concrete, Design of Footings in Reinforcement. Formulas, details and plans. By A. M. Worthington. 2 pp., Canadian Engineer, October 9. 10 cts.

The Effect upon Design in Reinforced Concrete of Alterations in the Modulus Ratio. Extracts from "Engineering," England. Stresses and tests. By P. J. Walbran, F.S.I., M.C.I. Ill., 5 pp., Canadian Engineer, October 30. 10 cts.

Indiana Concrete Aggregate. By C. D. Franks. Indiana Engineering Society. 8 pp., Proceedings, 1913. 50 cts.

Poles, Piles and Pipe Made Without Molds. A new method of concrete construction. By R. M. Jones. Ill., 2 1/2 pp., Cement Era, October. 10 cts.

Bridges, The Aesthetic Treatment of City. By H. G. Tyren, C. E. Ill., 8 pp., The American City, November. 20 cts.

The Design of Large Bridges, with Special Reference to the Quebec Bridge. By R. Modjeski. Ill., 7 1/2 pp., Contract Record, October 1. 15 cts.

MISCELLANEOUS.

Smoke Nuisance, The Economic Cost of. to Pittsburgh. Cost to individuals, stores and public buildings. Bulletin. By J. J. O'Connor, Jr., A.B., University of Pittsburgh. 1913. 46 pp.

Housing Reform, Practical Problems of. Clearing unhealthy areas. Voluntary municipal housing in London. By W. E. Riley, F.R.I.B.A., superintendent and architect, London County Council. 1 1/2 pp., Surveyor, October 17. 15 cts.

Open Spaces, History of "Open Space" movement. Need of open spaces; schemes and statistics. By B. H. Miles, member Middlesex County Council and Secretary Metropolitan Public Gardens Association, London. Paris Congress of Public Health, 15 pp., Journal of State Medicine, London, England, October. 60 cts.

Park System of a Pacific Coast Town. By W. H. Day. Ill., 2 pp., American City, November. 25 cts.

Stimulating Appreciation of our Public Parks. By Mrs. A. R. Perrett. Ill., 6 pp., American City, November. 25 cts.

Railroad Stations and their Surroundings, How to Improve. By J. H. McFarland, president American Civic Assn. Ill., 5 pp., American City, November. 25 cts.

Grade Crossings at South Philadelphia. the Abolishment of. Consequent industrial development. Ill., 72 pp., Department of Public Works, 1913.

Layout and Public Improvements of the Industrial City of Torrance, California. By R. Bennett. Ill., 4 pp., Engineering News, October 30. 15 cts.

Jail, The County. By H. S. Curtis, Ph. D. 1 p., American City, November. 25 cts.

(Continued on page 684).

NEWS OF THE SOCIETIES

Calendar of Meetings.

December 3-5.
NATIONAL HOUSING ASSOCIATION.—Third National Conference, Cincinnati, O. John Ihlder Fuld, Secretary, 105 East Twenty-second street, New York City.

November 10-15.
UNITED STATES GOOD ROADS ASSOCIATION.—Meeting St. Louis, Mo. John H. Bankhead, president; J. A. Rountree, secretary, 1021 Brown-Mars Building, Birmingham, Ala.

November 20-22.
ALABAMA GOOD ROADS ASSOCIATION.—Annual meeting, Mobile, Ala. J. A. Rountree, Secretary.

December 1-2.
AMERICAN SOCIETY OF REFRIGERATING ENGINEERS.—Annual meeting, New York City. W. H. Reed, Secretary, 154 Nassau St., New York City.

December 2-5.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Annual meeting, New York City. Calvin W. Rice, Secretary, 29 W. 39th St., New York City.

December 8-11.
ASSOCIATION OF AMERICAN PORTLAND CEMENT MANUFACTURERS.—Annual meeting, New York City. Percy H. Wilson, Secretary, Land Title Building, Philadelphia, Pa.

December 9-12.
AMERICAN ROAD BUILDERS' ASSOCIATION.—Annual Convention, First Regiment Armory, Philadelphia, Pa. E. L. Powers, Secretary, 150 Nassau street, New York City.

December 10-13.
AMERICAN INSTITUTE OF CHEMICAL ENGINEERS.—Annual meeting, New York. J. C. Olsen, Secretary, Polytechnic Institute Brooklyn, N. Y.

January 16.
AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—Annual meeting, New York City. J. R. Wemlinger, Secretary, 11 Broadway, New York City.

February 16-20.
NATIONAL ASSOCIATION OF CEMENT USERS.—Fourth Annual Convention, Chicago, Ill. Edward E. Krauss, Secretary, Harrison Building, Philadelphia, Pa.

League of Texas Municipalities.

In response to a call issued by Mayor A. P. Wooldridge of Austin, a number of mayors of Texas cities met in convention at Austin, Tex., Nov. 4, and organized the League of Texas Municipalities, discussed the home-rule law passed by the Thirty-third Legislature, listened to a number of addresses on subjects of interest to heads of city governments, delivered by well-informed speakers, and partook of hospitable entertainment, including a luncheon at the Driskill Hotel, at which Gov. Colquitt was an especially invited guest, and an automobile ride over Austin's many miles of splendidly paved streets.

The following officers were elected—all by acclamation: Mayor A. P. Wooldridge, Austin, president; Mayor R. M. Chapman, Greenville, first vice president; Mayor W. M. Holland, Dallas, second vice president; City Attorney J. C. Hutcheson, Jr., Houston, third vice president; Dr. Herman G. James, director of bureau of municipal research and reference, University of Texas, secretary-treasurer.

Upon motion of Mayor Pro Tem. J. J. Pastoriza of Houston, seconded by Mayor Holland of Dallas, Houston was unanimously selected as the next place of meeting of the league.

The constitution and by-laws of the league as adopted unanimously by the convention, were prepared by Dr. James and reported by a committee

consisting of Mayor Holland, Dallas, chairman; Mayor Bates, Denton; Mayor Muggs, Cuero; City Attorney Kemp, Greenville, and Mayor Green, San Marcos. A conference is to be held each year by the league, at which problems of municipalities will be discussed.

The annual dues are \$10 for cities over 5,000 population, and \$5 for cities under 5,000 population, and each city will be entitled to one vote in the convention.

James J. Collins, former city attorney of Dallas, was to have read a paper on the home-rule law, but he was unable to attend the convention on account of illness. The subject, however, was discussed by City Attorney J. Bouldin Rector, of Austin, William M. Bonner of Wichita Falls and J. C. Hutcheson of Houston. Mr. Rector, who was a member of the legislative committee of the Texas City Attorneys which drafted an enabling act and which was changed considerably by the Thirty-third Legislature, in his discussion said that he was still skeptical of the amendment as a beneficial working result, and he would not like to have Austin try the new law until it can be seen how Houston, Galveston and other cities which have accepted the amendment have fared.

Mr. Bonner and Mr. Hutcheson expressed the belief that the home-rule law would work out all right, and that cities adopting charters under its provisions would make rapid strides to successful city government.

The program closed with an address by Mayor Pro Tem. Pastoriza on "The Tax System of Houston and the Sommers System of Property Valuations."

The convention was attended by the following: Mayor A. P. Wooldridge, City Attorney J. Bouldin Rector, Austin; Mayor Ed F. Bates, Denton; City Attorney William K. Bonner, Wichita Falls; Mayor R. N. Chapman, City Attorney F. M. Kemp, Greenville; L. A. Giraud, public accountant, Houston; Mayor W. M. Holland, City Attorney G. F. O'Donnell, Dallas; Mayor Ed H. McCuistin, Paris; Dr. C. S. Potts, professor of government, Austin; Mayor T. S. Caven, Marshall; City Commissioner A. B. Weeks, Marshall; R. J. Newton, secretary Anti-Tuberculosis League of Texas, Austin; Dr. Herman G. James, University of Texas; Mayor R. L. Lamb, Cooldge; Mayor H. A. Muggs, City Attorney A. C. Hartman, Cuero; Mayor Pro Tem. J. J. Pastoriza, City Attorney J. C. Hutcheson, Jr., City Controller O. B. Bonney, Houston.

Mayor Wooldridge, who is responsible for calling the convention of Texas Mayors, presided over the convention, and in the course of his address of welcome gave his views on a number of phases of municipal government. He said that the many problems confronting the cities have grown so complex that it was necessary for the heads of the city governments to get together

not annually, but frequently, to discuss methods.

Mayor Ed. H. McCuistin of Paris was introduced as the speaker who would respond to the address of welcome in place of Mayor Brown of San Antonio. Mayor McCuistin thanked the Mayor of Austin for the hearty welcome and assured him that every Mayor in the State was grateful to him for the efforts he had made in bringing the heads of Texas municipalities together for the purpose of organizing an association which he felt sure would be beneficial to the cities.

Addresses delivered at the morning session of the convention, and which are of vital interest to the men who have charge of city governments, were "The Function of Municipal Leagues," by Dr. Herman G. James, director of the bureau of municipal research and reference, University of Texas, and "The Place of Legislative Reference Bureaus in Government," by Dr. C. S. Potts, professor of government, University of Texas.

PERSONALS

The following mayors have been elected:

New York.

Albany—J. W. Stevens.
Amsterdam—J. R. Cline.
Auburn—C. W. Brisler.
Binghamton—W. R. Ely.
Buffalo—L. P. Fuhrmann.
Canandaigua—H. P. Turner.
Corning City—L. N. Lattin.
Dunkirk—J. T. Sullivan.
Elmira—Henry N. Hofman.
Geneva—R. H. Gulvin.
Gloversville—G. W. Schermerhorn.
Hornell—Frank Nelson.
Ithaca—Thomas Tree.
Johnstown—C. W. Smith.
Kingston—H. Canfield, Jr.
Little Falls—Shall.
Middletown—R. M. Cox.
Mt. Vernon—E. W. Fiske.
Newburgh—J. B. Corwin.
New Rochelle—E. S. Griffing.
Niagara Falls—William Laughlin.
Olean—W. H. Simpson.
Oneonta—J. F. Lunn.
Oswego—T. F. Hennessy.
Poughkeepsie—D. W. Wilbur.
Rochester—H. H. Edgerton.
Rome—M. C. Midlam.
Salamanca—Henry Neff.
Schenectady—J. T. Schoolcraft.
Syracuse—Louis Will.
Troy—C. F. Burns.
Utica—James D. Smith.
Watertown—I. R. Breen.
Yonkers—J. T. Lennon.

Ohio.

Akron—F. W. Rockwell.
Alliance—W. P. Barnum.
Andover—W. H. Brown.
Archibald—John Mowne.
Astabula—H. D. Cook.
Athens—O. F. Rowland.
Barberton—Rev. A. M. Bird.
Batavia—M. L. Burnett.
Bellaire—Charles Wassman, re-elected.
Bellefontaine—O. Walter Prell, re-elected.

Bellevue—M. R. Nichols.
 Berea—F. L. Wing.
 Blanchester—J. W. Gustin.
 Bloomville—H. M. Bame.
 Bowling Green—Frank Wolfe.
 Bridgeport—Charles Shafer.
 Bucyrus—E. J. Longer.
 Cadiz—C. G. Addleman.
 Cambridge—J. H. Dilley.
 Canton—Charles A. Stolzberg.
 Carrollton—A. H. Hise.
 Canal Dover—L. Williams.
 Celina—C. B. Rice.
 Chardon—H. C. Bickle.
 Chillicothe—James A. Cahill, re-elected.
 Cincinnati—F. S. Spiegel.
 Circleville—E. C. Friece.
 Cleveland—N. D. Baker.
 Columbus—G. J. Karb.
 Conneaut—W. H. Leet.
 Connellsville—L. T. Conolew.
 Continental—H. C. Parrett.
 Coshocton—L. N. Staats.
 Crooksville—W. A. Lentz.
 Cygnet—Cornelius Slike.
 Defiance—Wm. Schmalz.
 Delaware—J. L. Anderson.
 Delphos—J. H. Judkins.
 Dennison—W. Pittinger.
 Elyria—Charles E. Tucker.
 East Liverpool—V. A. Schreiber.
 Findlay—W. J. Frey.
 Fostoria—George Cunningham.
 Frazeysburg—Dr. J. Korn.
 Fremont—C. Stausmyer.
 Gallipolis—E. T. Kuhn.
 Galion—Dr. H. H. Hartman, re-elected.
 Geneva—A. J. Trunkey.
 Georgetown—C. B. Fee.
 Gloucester—Hugh Gormley.
 Granville—D. N. Bay.
 Hamden—W. H. Henry.
 Hamilton—Fred A. Hinkel.
 Hillsboro—James A. Wilkins.
 Hudson—F. L. Fillius.
 Huron—A. E. Spier.
 Ironton—A. J. Harmon.
 Jackson—Frank McClain.
 Jefferson—H. J. Redmond.
 Kent—Martin L. Davey.
 Kenton—C. R. Price.
 Lancaster—C. M. Rowlee.
 Lebanon—W. Roll.
 Leesburg—C. P. Keen.
 Leipsic—D. V. Burns.
 Lima—Johann Robb.
 Lisbon—B. F. Hennacy.
 Logan—A. E. Hulse.
 London—Burnham.
 Lorain—J. J. Pollock.
 Loveland—J. E. Harper.
 Magnetic Springs—John W. Bell.
 Mansfield—Fred S. Marquis.
 Marietta—David Okey.
 Marion—Don E. Brockett.
 Martins Ferry—Newton Wyckoff, re-elected.
 Marysville—A. H. Kalleford.
 Massillon—Arthur Kaley.
 Medina—R. L. Gelman.
 Milan—H. P. Lohr.
 Milford—John Boyce.
 Millersburg—W. Stilwell.
 Montpelier—W. H. Shinn.
 McConnellsville—W. C. Gillespie.
 Mt. Gilead—W. F. Bruce.
 Mt. Vernon—A. A. Perrine.

Navarre—H. Foster.
 Nelsonville—Nathan Hill.
 Newark—R. C. Higbee.
 New Concord—A. H. McCullough.
 New Lexington—John W. Dugan.
 New Philadelphia—J. F. Huhn.
 North Baltimore—G. W. Fulton.
 Norwalk—E. G. Martin.
 Oak Harbor—Louis Hilb.
 Ottawa—T. F. McElroy.
 Oxford—T. L. King.
 Painesville—F. N. Malin.
 Pemberville—James Rogers.
 Piqua—G. W. Loriner.
 Pomeroy—Eugene Long.
 Portsmouth—Adam Frick.
 Port Clinton—P. Olemacker.
 Ravenna—W. A. Lyon.
 Richmond—B. Conkright.
 Ripley—L. V. Williams.
 Salem—R. B. Johnson.
 Sandusky—Jacob Dietz.
 Shawnee—M. W. Bradshaw.
 Shelby—Captain Howe.
 Sidney—William H. Crozier.
 Somerset—J. McElroy.
 Steubenville—George W. McLeesh.
 St. Clairsville—Henry M. Davies.
 St. Marys—S. M. Randabaugh.
 Tiffin—W. K. Keppel, re-elected.
 Toledo—Carl H. Keller.
 Troy—Milton L. Bilts.
 Uhrichsville—D. C. Foster.
 Unionville—Silas Cooper.
 Unionville Center—Elias Cooperrider.
 Upper Sandusky—J. M. Stevenson.
 Urbana—J. F. Green.
 Utica—Geo. Smoots.
 Van Wert—A. C. Gilpin.
 Wapakoneta—John J. Hay.
 Washington C. H.—C. F. Coffey.
 Wauseon—R. Hoy.
 Wellston—J. W. Nixon, re-elected.
 Wellsboro—B. F. Steiner.
 Wilmington—Charles Curle.
 Wooster—Forbes Alcock.
 Xenia—William Dodds.
 Youngstown—H. F. Duesing.
 Zanesville—W. H. Webster.

The following city officials have been elected in New Jersey:

Newark—Board of Public Works, —
 Ryan.
 Springfield—Chairman Township Committee, Wilmer F. Sickley.
 Linden—Mayor, H. B. Hardenburg.
 Kenilworth—Mayor, John Hiller, Jr.
 Fanwood—Wm. H. Hoar.
 Red Bank—Commissioner, Dr. Herbert F. Williams.
 Newton—Township Committee, E. M. Dutcher.
 Helmetta—Mayor, C. W. Bumstead.
 Milltown—Mayor, Wm. Kuhlthau.
 Clinton—Mayor, John B. Hulsizer.
 Keyport—Rufus O. Walling.
 Avon—George B. Goodrich.
 Neptune City—Henry A. Bennett.
 The following mayors have been elected in New Jersey:
 Andover—Robert T. Smith.
 Asbury Park—William H. Berry.
 Bayonne—Dr. Albert Daly.
 Belmar—Robert G. Poole.
 Belvidere—Dr. Elmer C. Lockhard.
 Belleville—John C. La Faucherie.
 Boonton—George W. Logan.
 Bound Brook—George H. Packer.
 Branchville—William C. Cook.

Camden—Charles H. Ellis.
 Cape May—W. W. Cassedy.
 Carlstadt—Herman Duchart.
 Chatham—Laurence S. Page.
 Clayton—J. Preston Potter.
 Collingswood—George Lippincott.
 Dover—William L. R. Lynd.
 Dunellen—E. B. Latham.
 East Newark—Cornelius A. McGlen-
 non.
 Elmer—Jonathan G. Brooks.
 East Rutherford—Charles Cooper.
 Englewood—Vernon Munroe.
 Essex Falls—J. Foster Oakes.
 Franklin—David W. McCarthy.
 Garfield—Ernest Dahnert.
 Glen Ridge—David H. Standish.
 Hackettstown—Wallace Taylor.
 Hammonton—Dr. Frederick C. Burt.
 Highland Park—George White.
 Hoboken—Martin Cooke.
 Hopatcong—Richard L. Edwards.
 Jamesburg—Elmer Patten.
 Kearny—Robert E. Torrance.
 Lambertville—Samuel E. Morse.
 Madison—Benew D. Philhower.
 Manasquan—William F. Jefferson.
 Matawan—Frank C. Bedle.
 Metuchen—Robert H. Willmont.
 Middlesex—Max F. Wirtz.
 Netcong—Elmer King.
 New Brunswick—Dr. Austin Scott.
 North Arlington—William Brandenburg, Jr.
 North Plainfield—Robert Clark, Jr.
 Paterson—Robert H. Fordyce.
 Paulsboro—Dr. M. J. Doolittle.
 Penns Grove—R. N. Wills.
 Point Pleasant—Thomas Ferguson.
 Pitman—Charles G. Justice.
 Princeton—H. A. Phillips.
 Rahway—Thomas A. Fyffe.
 Rockaway—Edward H. Ehlers.
 Roselle—Charles W. Low.
 Rumson—John Corlies.
 Rutherford—Oscar F. Gunz.
 Salem—Robert Gwynne.
 Seabright—George W. Elliott.
 Stanhope—John Wills.
 Somerville—Wm. V. Steele.
 South Bound Brook—George M. Baldwin.
 South River—John Fee, Jr.
 Spring Lake—Oliver H. Brown.
 Summit—Francis H. Bergen.
 Sussex—Frank Holbert.
 Verona—David H. Slayback.
 Washington—Charles B. Smith.
 Wellington—John McMahon.
 West Long Branch—Arthur F. Golden.
 West Hoboken—Charles Moon.
 West New York—Oscar Auf der Heide.
 Woodridge—Charles R. Ruegger.
 Woodstown—Enoch S. Fogg.

The following city officials have been elected in Pennsylvania:

Allentown—Councilmen: Calvin E. Arner, Col. S. D. Lehr, Francis G. Lewis and Robert Johns.
 Altoona—Councilmen: Ira J. Shelly, George W. Kuebler, Frank E. Rooney and H. J. Corruman.
 Beaver—Burgess, Arthur Weston.
 Bradford—Councilmen: Ed. F. Bettner, James A. Lindsey, F. M. Hotchkiss and R. A. Weaver.

Butler—Burgess, S. M. Seaton.
 Connellsburg—Mayor, D. Marietta.
 Corry—Mayor, John D. Patterson.
 Easton—Dr. Charles Collmer, Dr. R. B. Field, Charles F. Chidsey and William Tarkin.
 Erie—Councilmen: Cassius L. Daker, Theodore Eichorn, Frank E. Pelow and John Dudon.

Franklin—Mayor, Dr. F. W. Brown.
 Hazleton—Mayor, Jas. G. Harvey;
 Councilmen: Charles Bittenbender, William Cullen, Alvan Beisel, William Gerlach.
 Hollidaysburg—Burgess, John J. Akers.
 Indiana—Burgess, J. I. Shaffer.
 Jenkintown—Chief Burgess, Andrew Graham.

Lock Haven—Councilmen: L. A. Shaffer, Jr., Walter Ager, Robert A. Hayes and Allen Sterner.
 McKeesport—Mayor, George H. Lysle;
 Councilmen: Singleton Neisser, D. M. White, James E. Paterson and Archie Duncan.
 Milton—Chief Burgess, Augustus Rhoades.

NEW APPLIANCES

UNIVERSAL ROAD MAKER.

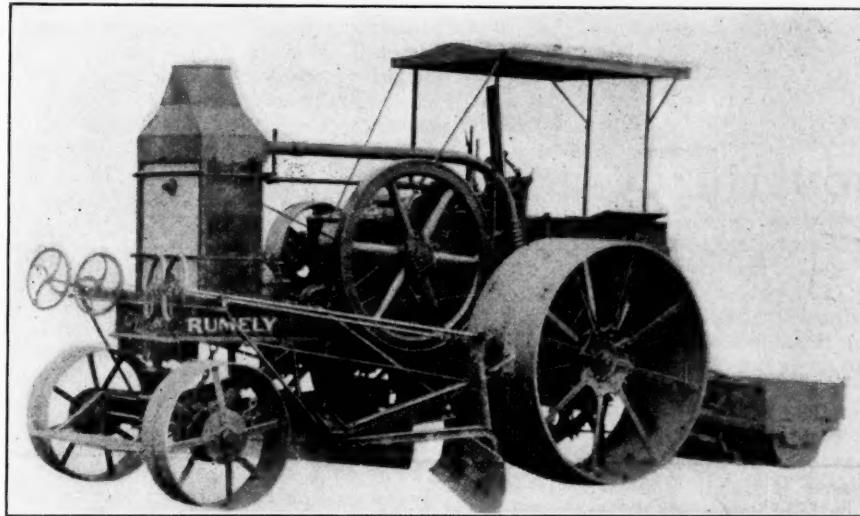
Rumely Company Equips Oil Tractor With Scrapers and Roller for Road Building.

M. Rumely Co., La Porte, Ind., who have made kerosene and gasoline traction engines for a number of years, have fitted their "Oil-pull" tractor with scrapers and roller so as to make it a universal road machine. In a word, the machine is designed to do the work usually performed by a traction engine hauling an ordinary grading machine behind it. The accompanying illustrations of a road before and after working with the new Rumely machine show the quality of work done. The road is in La Porte county. It had been scraped in the ordinary way about three weeks before, but as the picture shows, had become badly rutted. The other illustration shows the condition after the Rumely Universal Road Maker had made a trip along each side and through the middle of it.

The machine is operated by two men, one running the engine and the other standing on a platform at the front of the tractor, facing the engineer, with the hand wheels controlling the scrapers in front of him. The scrapers are eight feet wide each. Back of the driving wheels is a drag which has several rows of adjustable teeth. In the rear covering the space between the two driving wheels is a roller. The scraper blades are adjustable, so either end may be raised or lowered at any time. The blades

can also be reversed by changing the plow beams about. They are built in accordance with good practice in building grading machines and they are well braced. It is claimed that the machine does some things better than a separate roller and grader. The en-

ergy. In its construction the importance of a strong frame has not been overlooked. It is made of 12-inch I-beams riveted together. The front wheels are 44 inches high and the rear 80 inches, with steel tires and wrought iron spokes. All gearing is of steel

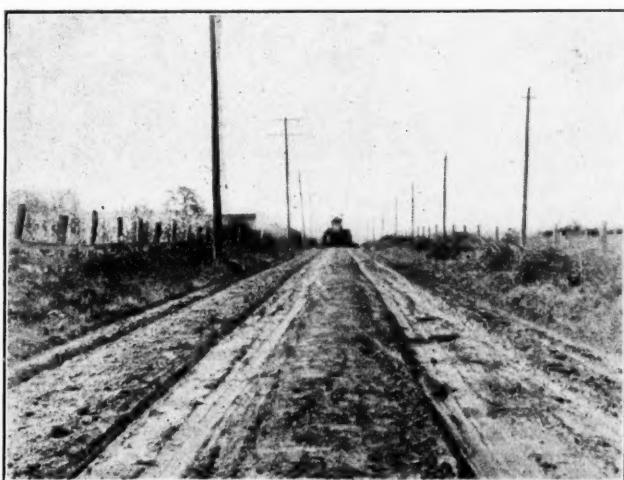


RUMELY UNIVERSAL ROAD MAKER.

gine driver and the man operating the scrapers are within easy talking distance, hence can cooperate in their work. Moreover, the fact that there is a roller in the rear is claimed to give a better surface to the finished road than that left by a scraper.

The Rumely Oil Pull tractor which carries the road-making equipment, is itself an interesting piece of machin-

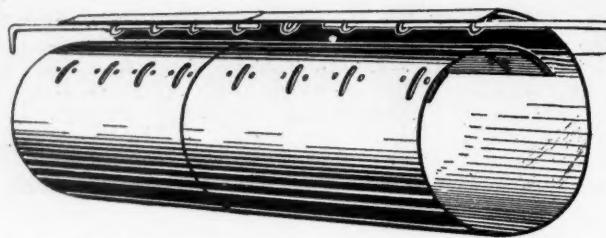
or semi-steel. The engine is four-cycle, with two cylinders of ten-inch diameter and twelve-inch stroke. Oil is used as the medium for carrying heat from the cylinder walls to the radiator. There is no surplus of liquid, just enough oil being used to fill the cylinder jackets, radiator and circulation pipes. The control of the carburetor is automatic.



BEFORE USING.



AFTER USING.



CYLINDER SHOWING METHOD OF ADJUSTING.

Cement Culvert Mold.

The Kelly Mfg. Co., Waterloo, Ia., manufacture the Fish culvert molds shown in the illustrations. The molds are adjustable and collapsible. The connection by which the sheets of steel forming the cylinder are fastened is the original and important feature. It consists of a slot, loop and draw rod. When the rod is removed the sections separate at the top with the contraction of the sheets which are under tension when the mold is set up. In the collapsed condition the sections are easily removed without injury to the waterway. The abutments are of wood. They are held together by rods running through the culvert form.

INDUSTRIAL NEWS

Cast Iron Pipe.—Chicago. A fair tonnage of routine business is reported. Quotations: 4-inch, \$28; 6 to 12-inch, \$26; 16-inch and up, \$25. Birmingham. Shops are running on short time, but orders are sufficient to keep them going. Quotations: 4-inch, \$22; 6-inch and up, \$20, San Francisco. The outlook is improving. Several bond issues have been voted for waterworks improvements. New York. Business is quiet. Quotations: 6-inch, \$23 to \$23.50.

Lead.—Market is quiet but firm. Quotations: New York, 4.35c.; St. Louis, 4.20c.

New Asphalt Company.—The Consolidated Asphalt Corporation of Canada, Ltd., Winnipeg, Man., has been incorporated with a capital stock of \$1,500,000 by Dr. R. M. Simpson, of Winnipeg, Dr. Clarence W. Field and others.

Asphalt Blocks.—The Lockport Paving Company, Lockport, N. Y., manufacturer of asphalt paving blocks, has a factory nearing completion at the foot of Market St., East Lockport. The company will use Aztec asphalt supplied by the United States Asphalt Refining Company.

Soot Cleaner.—G. L. Simonds & Company, 115 South La Salle street, Chicago, Ill., are the sales agents for the Vulcan Soot Cleaning System. The principle of this system is perfect distribution of steam so directed and controlled as to clean the entire surface of every tube. When dry, high-pressure steam is suddenly released among the tubes from a two-inch supply line, the effect is instantaneous, creating a cyclone of currents and counter-currents that reach every part.

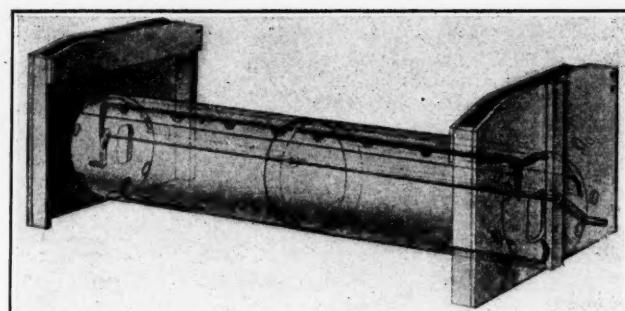
Auto Sprinkler and Flusher.

The Kissel-Kar sprinkler and flusher is being exhibited in several Minnesota cities by J. T. Peacha, Jr., of the Interstate Auto Company of Duluth. Exhibitions have already been made at Hibbing and Duluth.

Wagons.—The Kentucky Wagon Manufacturing Company, Louisville, Ky., will manufacture parts which it formerly has purchased and has been buying equipment for stamping, bending and drop forging. Most of the equipment needed for the new line of work has been ordered. R. V. Board, formerly New England branch manager of the International Harvester Company, has been elected president of the Kentucky Wagon Manufacturing Company.

Dictograph.—K. M. Turner, 1265 Broadway, New York City, the inventor of the dictograph method of obtaining evidence, is prepared to lease his machines to responsible persons at an annual rental charge. The reason for leasing the machines rather than selling them is to prevent abuses. Mr. Turner publishes a number of folders explaining the workings and value of the device as well as its legal status. The theory on which dictograph evidence is introduced and accepted by the courts is explained. A long list of cases where arrests and convictions were caused by the dictograph are given. Details of the evidence secured in many cases are described. A testimonial from the Ohio Police Association, signed by Secretary J. H. Stamberger, East Cleveland, O., is one of the most convincing recommendations.

Automobile Trucks.—The Standard Motor Car Company, Minneapolis, Minn., has been organized with a capital stock of \$6,000,000 as a result of the merging of the Colby Motor Company, Mason City, Iowa, and the Minneapolis Motor Company, Minneapolis. The new corporation contemplates the building of an immense new plant at Minneapolis on the completion of which the present plants at Mason City and Minneapolis will be disposed of. It will manufacture pleasure cars, light delivery trucks and motorcycles. Among those interested in the merger are F. E. Kenaston, president, Minneapolis Threshing Machine Company; M. J. Scanlon, Brooks-Scanlon Lumber Company; S. B. Bowman, Bowman Lumber Company, and C. H. McNider, president First National Bank, Mason City.



FISH CULVERT MOLD WITH ABUTMENT FORMS.

Explosives.—The Independent Powder Company, Joplin, Mo., make four grades of powder, each adapted to a special kind of work.

Independent Gellatin should be used in wet work and in tunnels where ventilation is poor.

Sampson Brand is for hard, tight work, as in breaking up boulders.

Independent Brand used in connection with black blasting powder or Jupiter powder is economical in large cuts where work is dry.

Peerless and Eclipse are low freezing grades and are good rock breakers, especially suited for winter work.

MUNICIPAL INDEX.

(Continued from page 680.)

Abattoir at Belbest, New. Machinery and equipment of municipal abattoir. Ill., 2 pp., Local Government Journal, September '20. 5 cts.

Library. The Municipal Reference. By E. W. Creecraft. 9 pp., National Municipal Review, October. \$1.25.

Survey. The Newburgh, Report of investigation of social conditions in Newburgh, N. Y., by Department of Surveys and Exhibits. Russell Sage Foundation. By Z. L. Potter, Director of field work. Ill., 104 pp., June, 1913. 15 cts.

Pittsburgh Doubly Investigated. Efficiency in investigation of fire department. 1 p., Fireman's Herald, October 25. 5 cts.

Education in New York City. Advt. By O. Hoyen. 3 pp., National Municipal Review, October. \$1.25.

How the Universities are Helping University and municipal affairs. Ed., 1 p., The American City, November. 25 cts.

Statistics. Census Bureau's Municipal. Ed., 1/2 p., Municipal Journal, October 30. 10 cts.

Contracting. A Discussion of Some Practical Legal Phases of. By G. T. Sayers. 2 pp., The Contractor, October 1. 20 cts.

Should Fees be Charged for the Use of Plans by Contractors Estimating on Work? Ed., 1/4 p., Engineering News, October 23. 15 cts.

A Method of Contract Payments Based on Cost. Use of the price schedule. By G. I. Battelle. 2 pp., Contract Record, October 29. 10 cts.

Motor Truck in Contracting and Construction Work. Contractors' objections. By R. W. Hutchinson, Jr. Ill., 12 pp., Engineering Magazine, November. 25 cts.

Air Compressors and Compressed Air Machinery. Large steam driven compressors. By R. L. Streeter. Ill., 17 pp., Engineering Magazine, November. 25 cts.

Astoria Tunnel Under the East River. New York City. Description, construction plant, difficulties. By H. Carpenter, resident engineer. Ill., 6 1/2 pp., Engineering News, October 16. 15 cts.

Depreciation. Estimated and Actual Depreciation in state regulation of public utilities. By Dr. A. H. Humphreys, president Stevens Institute of Technology. Institution of Gas Engineers of Great Britain. 4 1/2 pp., Engineering & Contracting, October 8. 10 cts.

A. S. M. I. and A. S. P. S. Combine. Ed., 1/4 p., Municipal Journal, October 16. 10 cts.

ADVANCE CONTRACT NEWS

ADVANCED INFORMATION BIDS ASKED FOR

CONTRACTS AWARDED ITEMIZED PRICES

To be of value this matter must be printed in the number immediately following its receipt, which makes it impossible for us to verify it all. Our sources of information are believed to be reliable, but we cannot guarantee the correctness of all items. Parties in charge of proposed work are requested to send us information concerning it as early as possible; also correction of any errors discovered.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
STREETS AND ROADS				
Mich., Sanford	noon, Nov. 15.	Grading and surfacing 3 miles highway	W. H. Allswede, Clk. of Jerome Twp.	
Ind., Richmond	11 a.m., Nov. 15.	Improvement of highways	L. S. Bowman, Co. Aud.	
Mich., Lansing	Nov. 15.	11 miles of earth road	F. F. Rogers, State Hwy Comr.	
Minn., St. Paul	noon, Nov. 15.	Clearing and grubbing	St. Hwy. Comr.	
Ariz., Clifton	4 p.m., Nov. 15.	Concrete pavement	M. Dananauer.	
Ariz., Tucson	5 p.m., Nov. 15.	Street improvements	City Recorder.	
Wis., LaCrosse	2 p.m., Nov. 15.	Grading, 9,540.4 cu. yds. excav. 9,420.5 cu. yds. emb'km't.	Jno. Huntgen, Co. Ry. Comr.	
Md., Cumberland	noon, Nov. 17.	Grading and macadamizing 3.1 miles	C. Uhl, Ch. Co. Rd. Dir.	
Cal., San Bernardino	Nov. 17.	Highway	Co. Comrs.	
N. D., Williston	9 a.m., Nov. 17.	Grading	M. H. Aaen, Co. Aud.	
Tex., Heane	2 p.m., Nov. 17.	Grading, draining and improving 40 miles of road	H. W. Cummings, Ch. B. Coms. Com. on Pub. Bldgs.	
N. J., Elizabeth	8 p.m., Nov. 17.	Concrete walks	J. C. Burke, City Clk.	
Cal., Santa Ana	9 p.m., Nov. 17.	Cement sidewalks, curbs and gutters	M. H. Aaen, Co. Aud.	
N. D., Williston	9 a.m., Nov. 17.	Three metal culverts	J. J. Curran, Comr.	
N. J., New Brunswick	8 p.m., Nov. 17.	Vitrified brick, granitoid, asphalt, wood, etc.	O. C. Weller, Ch.	
Md., Baltimore	Nov. 17.	State highway, 5.83 miles	W. S. Kellar, St. Hwy. Engr.	
Ala., Prattville	11 a.m., Nov. 17.	Grading and draining	Comrs. Rd. Dist. No. 1.	
O., Youngstown	1.30 p.m., Nov. 17.	Glenwood Ave. extension	A. B. Fletcher, State Hy. Engr.	
Cal., Sacramento	Nov. 17.	State highway work	J. A. Hall, Co. Clk.	
Kan., Leavenworth	noon, Nov. 17.	Improvement of portion of Elm Grove Road	G. W. Norris, Dir. Dept. Wharves.	
Pa., Philadelphia	noon, Nov. 17.	Paving	W. H. McDonnell, Sec.	
Mo., Kansas City	Nov. 18.	Sheet asphalt, cement sidewalks	H. L. Slocum, Co. Aud.	
Minn., International Falls	Nov. 18.	Rural highway, 98 miles	W. L. Lowry, City Clk.	
Fla., Plant City	2 p.m., Nov. 18.	Street pavement	Co. Clk.	
Mo., Independence	Nov. 18.	Grading and macadamizing	Robt. Tait, City Treas.	
Ala., Montgomery	noon, Nov. 18.	Paving with clay gravel	R. D. Morgan, City Engr.	
Tex., Temple	4 p.m., Nov. 18.	Grading, surfacing and graveling 4,500 ft.	W. E. Hall, Co. Aud.	
Tex., Temple	10 a.m., Nov. 18.	Grading surfacing and graveling 3,900 ft.	H. S. Kraner, Clk.	
O., Marion	Nov. 18.	Paving and construction sidewalks	T. J. Furlong, City Clk.	
Cal., Vernon	Nov. 19.	Sheet asphalt	Co. Court.	
Ore., Jacksonville	2 p.m., Nov. 19.	Section of Pacific highway	W. T. Patten, Co. Aud.	
Ind., Indianapolis	Nov. 19.	Road repairs	H. H. Canfield, Clk., Cleveland Heights.	
O., Cleveland	noon, Nov. 19.	Furnishing material and labor for road improvement	Co. Clk.	
Mo., Independence	Nov. 19.	80-ft. masonry culvert 30 ft. long	Co. Rd. Commission.	
Tenn., Chattanooga	Nov. 20.	Concrete curb, gutter and paving	F. M. Smith, City Clk.	
Cal., Oakland	noon, Nov. 20.	Grading, curbing and paving several streets; gutters	H. J. Craven, City Engr.	
Utah, Ogden	10 a.m., Nov. 20.	Concrete curbs and gutters	Co. Clk.	
Mo., Independence	Nov. 20.	Macadamizing	F. E. Wesselman, Pres. B. C.	
O., Cincinnati	noon, Nov. 21.	Repairs	W. E. Atkinson, St. Bd. Engrs.	
La., New Orleans	Nov. 24.	Sixteen miles of road	Ellsworth Bros., Engrs., Buffalo	
N. Y., Tonawanda	Nov. 24.	Concrete pavements	Co. Clk.	
Mo., Independence	Nov. 24.	Grading	F. Ness, Clk.	
Man., Assiniboina	4 p.m., Nov. 25.	Asphalt pavement	F. Ness, Clk.	
Man., Kirkfield	Nov. 25.	Sheet asphalt, 7 1/4 miles, 16 and 24 ft. wide	H. Johnson, Clk.	
O., Jefferson	Nov. 28.	Grading and paving	C. H. Brown, Co. Aud.	
Ind., Fort Wayne	10 a.m., Nov. 29.	Improvement of highways	J. M. Rauthrauff, City Engr.	
Ariz., Tucson	Nov. 29.	Bitulithic pavement	A. Fehrman, Mayor.	
Ill., Elgin	About Dec. 1.	43,000 sq. yds. brick paving	Jas. R. Marker, St Hwy. Comr.	
O., Columbus	Dec. 16.	Improvement of Angola Rd.		
SEWERAGE				
Ind., Danville	10 a.m., Nov. 15.	Drain	J. F. Lingeman, Con. Comr.	
Ala., New Decatur	7.30 p.m., Nov. 17.	Storm water sewer	Hy. Hartung, City Clk.	
Neb., Bancroft	Nov. 17.	Sewer system	Towle Engr'g Co., Omaha	
Ill., Dixon	Nov. 17.	Sewers, 14,800 ft. 6 to 30-inch	C. F. Nesbit, Engr.	
N. J., Elizabeth	8 p.m., Nov. 17.	300 ft. 10-inch sewer pipe	W. P. Neafsey, St. Comr.	
N. J., Linden	8 p.m., Nov. 17.	8-inch vitrified pipe, 2,020 lin. ft.; manholes, etc.	J. L. Bauer, Twp. Engr.	
Fla., Jacksonville	3 p.m., Nov. 17.	5 to 25-inch vitrified pipe, catchbasins, manholes	S. Hess, Ch. Com. P. W.	
N. J., Newark	2 p.m., Nov. 18.	Section 1 of Passaic Valley sewer	J. S. Gibson, Clk. P. V. S. C.	
Pa., Butler	8 p.m., Nov. 18.	Cleaning and repairing 4,000 lin. ft. terra cotta sewer	H. E. Coulter, Sec. Boro.	
O., Cleveland	noon, Nov. 18.	Sewers	H. H. Canfield, Clk., Cleveland Heights.	
N. Y., Gloversville	5 p.m., Nov. 18.	Timber work at disposal plant, cost \$4,000	City Council.	
O., Marion	Nov. 18.	Sewers, several streets	H. S. Kraner, Clk.	
Fla., Plant City	2 p.m., Nov. 18.	Storm sewers, 17 catch basins and manholes	J. B. McCrary Co., Engrs., Atlanta, Ga.	
Minn., Windom	1.30 p.m., Nov. 20.	Tile ditch No. 4	E. H. Klock, Co. Aud.	
Minn., Fairmont	Nov. 20.	Sewers in 11 blocks	A. Marsden, Engr., Ames	
Tenn., Chattanooga	Nov. 20.	Storm sewer	Co. Rd. Commission.	
Kans., Salina	Nov. 24.	Sewer line	City Council	
Ga., Savannah	Nov. 25.	Drainage system, 70 miles; pumping station	S. Cope, Ch. Board	
Fla., Tampa	Dec. 2.	Sewerage system	Bd. Comrs. Pub. Wks.	
N. J., Newark	2 p.m., Dec. 9.	Section 3 of outfall pressure tunnel	J. S. Gibson, Clk., Passaic Val. Sew. Comrs.	
Brazil, Rio Grande do Sul	Dec. 15.	Sewerage system	Sr. Coronel Intendente Municipal.	
N. J., Newark	Dec. 16.	Section 3 of the Passaic Valley Trunk Sewer	J. S. Gibson, Clk., Passaic Val. Sew. Comrs.	
Fla., Tampa	Dec. 16.	Sewage system	City Clerk.	
La., New Orleans	Jan. 6.	Pumps, 1 centrifugal, 11 screw; discharge pipes, gates, etc.	G. C. Earl, Gen. Supt.	

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
WATER SUPPLY				
Ill., Cairo		Nov. 15.	Two centrifugal pumps, 1,250,000 cap. each	Comrs.
Man., Winnipeg		11 a.m., Nov. 15.	Installation of 5 complete pumping units	M. Peterson, Sec. Bd. Con.
T. H., Pearl City		Nov. 15.	Steel tank and tower at Naval Station	H. W. Stanford, Ch. Bur. Yds. & Docks, Wash. D. C.
Neb., Auburn		Nov. 17.	Reservoir, power house, pumps, electrical equipment	Church Howe, Mayor.
Pa., Philadelphia		noon, Nov. 17.	Torresdale filter plant	G. W. Norris, Dir. Dept. Wharves.
Ont., Toronto		noon, Nov. 18.	Construction of 84-inch conduit	H. C. Hocken, Ch. Bd. Con.
O., Lima		noon, Nov. 18.	Water supply system	G. E. Whitney, Lima State Hosp. Com.
O., Cleveland		noon, Nov. 18.	Water main	H. H. Canfield, Clk., Cleveland
Can., Toronto		Nov. 18.	Brass goods, hydrants, lead pipe, etc.	H. C. Hocken, Mayor.
Okl., Devol		8 p.m., Nov. 18.	Water works system	M. A. Earl & Co., Engrs., Mus-Heights.
Cal., Riverside		Nov. 20.	Improvements to water works system	H. E. Cree, City Clk.
Neb., Silver Creek		Nov. 24.	Water works	D. F. Davis, City Clk.
O., Caldwell		Nov. 24.	Remodelling water works and lighting plant	T. P. Glidden, Clk.
Ont., Toronto		Nov. 25.	Installation of one or more pumping engines, etc.	H. C. Hocken, Mayor.
Brazil, Rio Grande do Sul		Dec. 15.	Water works system	Sr. Coronel Intendente Munici-
Mont., Great Falls		Dec. 18.	Concrete irrigation canal	U. S. Reclamation Service
Brazil, Therezopolis		Dec. 23.	Water works and sewage systems	Municipal' Cham., Therezopolis.
Kans., Lakin		Jan. 1.	Digging of artesian well	Kearney Co. Comrs.
Ia., Winfield		About Jan. 15.	Water system	J. O. Kilbourne, City Clk.
LIGHTING AND POWER				
Tex., Corpus Christi		4 p.m., Nov. 15.	Electrical street lighting	F. J. Mulligan, City Sec.
Can., Calgary		Nov. 16.	100 k. w. synchronous motor generator and exciter	J. J. Miller, City Clk.
N. Y., L. I. City		Nov. 17.	Electrical equipment	C. B. J. Snyder.
N. Y., Blackwell's Island		Nov. 17.	Wiring fixtures and gas piping in hospital	M. N. Drummond.
N. Y., Granityville, S. I.		Nov. 17.	Electrical equipment in school	C. B. J. Snyder, Supt.
Cal., Los Angeles			Lighting system in Monata Township	A. H. McPherson, Clk.
Ill., Springfield		9 a.m., Nov. 17.	Electric light fixtures	F. D. Whipp, Fiscal Suprv.
Neb., Auburn		Nov. 17.	Electric light plant	A. H. Kuper, City Clk.
Ill., Chicago		noon, Nov. 19.	900 Alba globes or clear globes	J. F. Neil, Sec. So. Pk. Comrs.
N. Y., Kings Park		3 p.m., Nov. 21.	Power house equipment, etc.	J. H. B. Hanify, Sec. St. Hosp. Comm.
Cal., Harmosa Beach		Nov. 21.	Furnishing and installing 8 ornamental lighting posts	City Clerk.
La., Baton Rouge		1 p.m., Nov. 22.	Lighting city with electricity	City Council.
D. C., Washington		10:30 a.m., Nov. 22.	Electrical apparatus	Maj. F. C. Boggs, Gen. Pur. O.
O., Caldwell		Nov. 24.	Remodelling lighting plant	T. P. Glidden, Clk.
Neb., Silver Creek		Nov. 24.	Electric light plant	D. F. Davis, City Clk.
D. C., Washington		Nov. 27.	Conduit, wires and fixtures at P. O.	O. Wenderoth, Supv. Arch.
Miss., Natchez		Dec. 3.	Public lighting contract	Lt. & Wtr. Com.
FIRE EQUIPMENT				
Tex., Corsicana		noon, Nov. 18.	One combination motor fire engine and hose car	J. A. Harper, City, sec.
Mass., Holyoke		4:30 p.m., Nov. 18.	Office apparatus for fire alarm system	P. M. Judd, Ch. B. Fire Com.
D. C., Washington		2 p.m., Nov. 18.	Installing 2 motor 2-wheel tractors and equipment	District Comrs.
O., Toledo		noon, Nov. 22.	Lead-covered cable, 5,000 ft.	J. J. Mooney, Dir. Pub. Safety.
BRIDGES				
O., Zanesville		11 a.m., Nov. 15.	Superstructure of bridge	F. C. Werner, Clk. Bd. Co. Comrs.
Idaho, Buhl		3 p.m., Nov. 15.	Two bridges	W. Forbes, Sec. Hwy. Dist.
Mich., Seney		Nov. 15.	Two wooden bridges	F. F. Rogers, St. Hwy. Comr.
S. D., Mitchell		2 p.m., Nov. 15.	Bridges	R. A. Zangle, Co. Aud.
O., Delaware		noon, Nov. 17.	Approaches to Liberty bridge	Co. Comrs.
Kan., Ozakie		noon, Nov. 17.	80-foot steel bridge	L. P. Sheldon, Co. Clk.
Mo., Independence		Nov. 17.	18 concrete box culverts	C. Co. Clk.
Cal., San Diego		1 a.m., Nov. 17.	12-span trestle bridge	T. Butler, Bd. Superv.
Kan., Valley Falls		noon, Nov. 17.	Steel bridge	L. P. Sheldon, Co. Clk.
Cal., Vernon		2:30 p.m., Nov. 18.	Steel and concrete bridge	T. J. Furlong, City Clk.
Minn., Internat'l Falls		10 a.m., Nov. 18.	Steel bridge	H. Slocum, City Aud.
N. Y., Glen Falls		2 p.m., Nov. 18.	Hudson bridge	L. F. Goodson, City Clk.
S. D., Armour		11 a.m., Nov. 18.	Bridges	C. F. Meyer, Co. Aud.
S. D., Castlewood		2 p.m., Nov. 18.	Steel, cement or pile bridges	J. W. Osborne, Co. Aud.
N. Y., Albany		noon, Nov. 18.	Two bridges	D. W. Peck, Supt. Pub. Wks.
O., Zanesville		Nov. 18.	Superstructure of bridge	Bd. Commissioners.
S. D., Mitchell		2 p.m., Nov. 18.	Bridge for 1914	R. A. Zangle, Co. Aud.
S. D., Miller		noon, Nov. 18.	Steel or concrete bridges	B. A. Lewis, Co. Aud.
Kan., Council Grove		noon, Nov. 18.	Stone arch bridge	B. F. Cress, Co. Clk.
S. D., Alexandria		Nov. 18.	Bridges for 1914	W. A. Caldwell, Co. Aud.
Wis., Eau Claire		2 p.m., Nov. 19.	Reinforced concrete arch bridge	J. C. Fennessey, City Clk.
O., Cleveland		11 a.m., Nov. 19.	Bridge work	Jno. F. Goldenbogen, Clk. Cmrs.
Ill., Le Prairie		2 p.m., Nov. 20.	Reinforced concrete bridge	Ill. Hwy. Comrs.
Minn., Paynesville		8 p.m., Nov. 20.	Replanking iron bridge	H. J. Haugen, Recorder.
Pa., Pittsburgh		10 a.m., Nov. 24.	Superstructure of Bloomfield Bridge	Chas. A. Tingley, Act. Dir., D. P. W.
O., Cincinnati		noon, Nov. 24.	Hopple street viaduct	V. T. Price, Dir. Pub. Serv.
O., Toledo		10 a.m., Nov. 25.	Construction of bridges and culverts	Chas. J. Sanzenbacher, Co. Aud.
Can., Toronto		noon, Nov. 25.	Structural steel work for bridge	H. C. Hocken, Mayor.
N. D., La Moure		2 p.m., Nov. 25.	Two bridges, steel	O. C. Temple, Co. Aud.
O., Toledo		10 a.m., Nov. 25.	Three culverts and abutment	C. J. Sanzenbacher, Co. Aud.
O., Cincinnati		noon, Nov. 28.	Repairing bridge	A. Reinhardt, Clk. Co. Comr.
S. D., Wheeler		2 p.m., Dec. 1.	Bridges for 1914	F. J. Kaberna, Co. Aud.
Wis., Manitowoc		Dec. 1.	Strengthening bridge	A. Reichert, City Clk.
O., Warren		1 p.m., Dec. 1.	Approaches to bridge	W. R. Harrington, Co. Aud.
O., Zanesville		11 a.m., Dec. 1.	Superstructure of bridge	F. C. Werner, Clk.
Mass., Lawrence		Dec. 1.	Bridge, steel and cement	City Engr. Marble.
Idaho, Roberts		Dec. 1.	Steel bridge	W. Gibson, Ch. Ed. Co. Comrs.
S. D., Brookings		2 p.m., Dec. 2.	Steel, concrete or pile bridges	F. H. Ripley, Co. Aud.
S. D., Redfield		2 p.m., Dec. 2.	Steel pile or concrete bridges	H. R. Wood, Co. Aud.
Okl., Oklahoma		10 a.m., Dec. 11.	Sixteen steel or concrete bridges	W. W. Storm, Co. Clk.
S. D., Elk Point		noon, Dec. 23.	Steel, concrete and wood bridges	Ed. Holden, Co. Aud.
S. D., De Smet		1 p.m., Jan. 6.	Steel or reinforced concrete bridges	W. M. Look, Co. Aud.
S. D., Clear Lake		2 p.m., Jan. 8, 1914.	Steel and concrete bridges	A. L. Larsen, Co. Aud.
MISCELLANEOUS				
O., Cleveland		noon, Nov. 18.	Two automobiles	C. W. Stage, Dir. P. S.
Mass., Holyoke		Nov. 18.	Underground fire alarm cable, also telegraph system	M. Judd, Ch. B. Fire Com.
Tex., Port Arthur		noon, Nov. 20.	Lock and dam canal	Jas. F. Wood, Engr.
Fla., Jacksonville		3 p.m., Nov. 20.	Auto truck, 2 to 3-ton capacity	E. P. Holmes, Ch. Co. Comrs.
O., Dayton		noon, Nov. 24.	Collection and removal of garbage for 10 years	R. P. Sebold, Dir. P. S.
N. Y., Buffalo		11 a.m., Nov. 25.	Reconstructing jail	J. C. Hinckley, Clk.
D. C., Washington		3 p.m., Nov. 28.	Construction U. S. Post Office at Cambridge, Ohio	O. Wendroth, Superv. Arch.

BIDS ASKED FOR

STATE	CITY	REC'D UNTIL	NATURE OF WORK	ADDRESS INQUIRIES TO
N. Y., New York	Nov. 28.	Section 1 of Jerome Ave. subway line.	Pub. Serv. Comm.	
O., Dayton	10 a.m., Nov. 28.	Embankment for bridge	W. A. Aszling, Sec. Co. Comrs.	
N. Y., New York	Dec. 1.	Section 1A, Southern Boulevard subway line.	Pub. Serv. Comm.	
Va., Portsmouth	noon, Dec. 1.	Remodeling Seaboard market house	L. P. Slater, City Clk.	
D. C., Washington	3 p.m., Dec. 19.	Construction of Post Office at Du Quoin, Ill.	J. Wenderoth, Superv. Arch.	
D. C., Washington	3 p.m., Dec. 20.	Extension & remodeling customhouse at St. Louis, Mo.	O. Wenderoth, Superv. Arch.	

STREETS AND ROADS

Guin, Ala.—Election held in Marion County to decide whether or not county was in favor of issuing bonds for \$100,000 to build good roads has resulted in favor of issue by majority of 115 votes.

Hamilton, Ala.—Bond issue of \$100,000 has been voted for construction of roads.

Manhattan Beach, Cal.—Establishment of boulevard to extend into Los Angeles is being planned. Road begins in Santa Monica, and extends through Playa del Rey into Manhattan, completing entire loop from beaches to city, distance of 54 miles of beautifully paved boulevard. Manhattan link will be paved by city of Manhattan Beach and Board of Trustees will advertise for bids immediately. This strip measures over two miles.

Oakland, Cal.—Upon recommendation of Commissioners of Streets Baccus, City Council has adopted plans and specifications for improvement of 65th St. westerly from Shattuck Ave. and 25th Ave., between E. 21st and E. 24th Sts.

Oakland, Cal.—Alameda County Board of Supervisors has voted to purchase \$200,000 worth of State highway bonds at once and \$300,000 worth later on. The Contra Costa County Supervisors has also passed resolution authorizing purchase of \$300,000 worth of State Highway bonds.

Pasadena, Cal.—Resolutions have been adopted for improvement of various streets.

Red Bluff, Cal.—Petition has been presented by J. M. Phillips of Federal Construction Co. to City Trustees for paving of Walnut St., between Main and Jackson sts., and also to build concrete curbing and to place gutters, paving to be done in accordance with specifications arranged by Board of Trustees at recent meeting.

Sacramento, Cal.—The California Highway Commission has directed State Highway Engineer Fletcher to make survey for proposed lateral from Redding, the county seat of Shasta, to Weaverville, the county seat of Trinity. It will be 50 miles long connecting county to westward with valley trunk line, from Sacramento to Oregon line.

San Francisco, Cal.—Plans are being discussed for proposed east bay shore highway to connect San Francisco and San Mateo counties.

San Francisco, Cal.—The Mission Promotion Association has requested Board of Supervisors to reconsider report of Public Works Commission on extension of Potrero Ave. southerly to Army St., and from Army St. to San Bruno Ave.

San Jose, Cal.—City Engr. has been instructed to prepare plans for paving San Salvador St. from Market to First.

Santa Cruz, Cal.—Campaign will be organized for permanent improvement of highways in Santa Cruz Co. and bond issue of \$1,000,000 is suggested for same.

Stamford, Conn.—Appropriation of \$5,000 will be asked for curbing and repairing streets in Second Ward.

Stockton, Cal.—Result of meeting between County Supervisors and 50 or more others was that majority favored county purchasing sufficient state highway bonds to guarantee construction of laterals to three mountain counties of Calaveras, Tuolumne and Amador.

Eureka, Cal.—Board of Supervisors has adopted resolution declaring intention of Siskiyou County to purchase \$50,000 worth of State's highway bonds at any moment they may be offered.

Watsonville, Cal.—Bond issue of \$1,400,000 is being discussed for construction of system of highways to connect several parts of Monterey County.

Millsboro, Del.—It has been decided to improve streets of town.

Clearwater, Fla.—City will vote November 25 on \$18,000 bonds to pave streets with vitrified brick, asphalt, macadam or other material.

Gainesville, Fla.—Board of County Commissioners has decided to postpone action upon calling of election to submit to taxpayers question of ratifying

or rejecting proposition to bond Alachua County for \$1,000,000 to build 100 miles of vitrified brick roads until first Monday in February, 1914.

Jacksonville, Fla.—Bill providing for paving, grading and improving of Main St., from Bay St. to Hogans Creek, asphaltic concrete to be the material used, has passed its final reading.

Miami, Fla.—County Commissioners propose to improve roads in Dade County.

Pass-a-Grille, Fla.—Election will be held December 1 for voting \$1,000 for street crossing and \$1,000 for filling streets and alleys.

Calhoun, Ga.—Gordon County will vote November 15 on \$100,000 bonds to construct roads.

Savannah, Ga.—Construction of boulevard between Savannah and Thunderbolt is being discussed.

Dixon, Ill.—Council has passed local improvement ordinance No. 156, providing for brick pavement on North Galena Ave., from Fellows St. to Illinois Central tracks, estimated cost of improvement being \$13,869.36.

Indianapolis, Ind.—City Engr. Klausmann has been directed to prepare plans for paving English Ave., from Keystone Ave. to the Big Four Ry. tracks.

New Castle, Ind.—Petition for improvement of South Main St., between Bundy Ave. and south side of Fair St. has been reported on favorably. It calls for paved roadway, sidewalks, cement curb and gutter.

Vincennes, Ind.—Gravel road bonds in sum of \$28,000 have been sold by county.

Council Bluffs, Ia.—City clerk has been instructed to advertise for bids on small strip of paving on Broadway between the Northwestern railroad tracks and 12th St. on the north side.

Jefferson, Ia.—Sum of \$2,000 has been raised for improvement of road leading through Jefferson.

Coffeyville, Kan.—Resolution has been adopted for construction of various sidewalks. H. H. Delchler is City Clk.

Hutchinson, Kan.—Resolution has been adopted for improvement of various streets. Ed. Metz is City Clk.

Topeka, Kan.—Resolutions have been adopted for improvement of various streets.

Louisville, Ky.—Ordinances have been adopted for improvement of various sidewalks.

Portland, Me.—Construction of water-bound macadam road with bituminous surface on 26 miles between Portland and Bath is under consideration at cost of about \$200,000. Lyman Nelson is Chairman State Highway Commission.

Lynn, Mass.—Granolithic sidewalks have been ordered on both sides of Chase St.

Duluth, Minn.—County Auditor Odin Haldin will readvertise for bids for construction of state rural highway No. 4, better known as Duluth-St. Vincent road. All bids which have been opened were rejected by auditor as unsatisfactory. Road, which will be built under Elwell law, will start from point of intersection of Culver and Miller Trunk rd. and extend to westerly limits of St. Louis County and will cost about \$115,000.

St. Paul, Minn.—Tentative estimates for paving of that portion of University lying between Rice and Dale Sts. already are in hands of Board of Public Works, but it is proposed to hear sentiment of property owners as to entire improvement before any definite action is taken with reference to any portion of the avenue.

St. Joseph, Mo.—All bids for grading of "A" Blvd. have been rejected by Board. Bids will be readvertised.

St. Joseph, Mo.—City Engr. has been instructed by Bd. of Pub. Wks. to prepare ordinance for paving of 22d St. from Commercial St. to Garfield Ave., with brick.

St. Joseph, Mo.—No objections have been filed with Bd. of Pub. Wks. against paving with mineral rubber Ohio Ave. from King Hill to Lake Aves., and with

concrete Belle St. from 16th to 18th Sts., and 15 days have been given to select a material. Board will send to Council ordinance for paving with asphalt macadam 28th St., Lafayette to Monterey, and will designate for sheet asphalt paving, Faraon from 26th to 27th Sts.

Elizabeth, N. J.—Ordinances have been passed for various street improvements.

Plainfield, N. J.—Extension of Spooner Ave. is being planned.

Lockport, N. Y.—New plans and specifications will be prepared by City Clerk and City Engineer for improvement of Walnut St.

Rochester, N. Y.—Property owners in Woodman Road between city and Durand-Eastman Park will consider plans for turning Woodman Road into boulevard. It is planned to make whole road 100 or 150 ft. wide with garden in center, similar to Seneca Parkway and Oxford St.

Schenectady, N. Y.—Ordinance has been passed ordering grading, curbing, paving and laying of sidewalks on Cutler St. Frank Cooper, Corp. Counsel.

Shelby, N. C.—Election will be held in December for voting on \$50,000 bond issue for good roads.

Wilmington, N. C.—Improvement of Nixon St. is being planned.

Cincinnati, O.—Street bonds in sum of \$30,000 have been sold to P. J. Goodhart & Co.

Youngstown, O.—Resolutions have been adopted for various street improvements. M. F. Hyland is City Clk.

Klamath Falls, Ore.—There are indications that Klamath Co. will vote bonds in sum of \$300,000 to build good roads. The issue will be submitted to voters in December.

Sebring, O.—Road bonds in sum of \$30,000 have been sold by Road Trustees of Smith Township.

Youngstown, O.—Bids will be received at 2 p. m., Nov. 17 at office of D. J. Jones, City Auditor, for purchase of bonds for various paving improvements.

Coneango, Pa.—Bond issue of \$30,000 has been voted for constructing permanent approach to overhead bridge and for replacing cobbles with bricks on number of streets.

Connellsville, Pa.—The paving of Cottage Ave., between Fayette St. and Murphy Ave. is again urged.

Erie, Pa.—City Engr. has been authorized to prepare plans and to advertise for bids for sidewalks in Ash St. subway.

Philadelphia, Pa.—After negotiations lasting 18 months, representatives of city and railroad officials have reached agreement by which Emerald and Tulip Sts. will be opened under Richmond branch of Philadelphia & Reading Ry. This operation will necessitate expenditure of over \$1,000,000.

Pittsburgh, Pa.—Plans are being made for improvement of West Liberty St.

Barrington, R. I.—Resolution has been passed that sum of \$7,600 be appropriated for highways and that sum of \$500 be used from such appropriation for highway and sidewalk improvements at Bay Spring.

Providence, R. I.—Widening and straightening of Waterman St. is proposed.

Woonsocket, R. I.—Finance Committee of City Council has voted to recommend passage of resolution appropriating \$10,000 for curbing work for next year.

Charleston, S. C.—Comm on Streets has reported favorably on petition of property owners for paving of Meeting St., between Wentworth and Society Sts., and recommended that it be paved with creosoted wood blocks under terms of contract already entered into for paving of Meeting St. from Market to Wentworth Sts. Committee has reported favorably on paving of Hasel St., from Meeting to King, with same material.

Charleston, S. C.—Resolutions have been adopted for improvement of various streets.

Sioux Falls, S. D.—Resolution has been passed authorizing paving of Phillips Ave.

Sioux Falls, S. D.—Resolution has been passed for paving of Phillips Ave., from 12th to 14th St., and ordinance for establishing grade on Weber Ave., from Third to Bailey Sts. has been given its first reading.

Brackettville, Tex.—Bond issue for good roads is being considered.

Fort Worth, Tex.—City Commission has voted to make needed repairs at once to Elizabeth, Kentucky and Bessie Sts., and City Secretary has been directed to advertise for bids on paving of Hawthorne St. Streets ordered repaired are all paved with macadam.

Langtry, Tex.—Election will be held Nov. 25 for voting on \$170,000 road bond issue.

Mexia, Tex.—Good road bonds voted here in the sum of \$150,000 over a year ago have been disposed of and a complete survey of proposed roads made. It is expected that actual work will begin at once.

Midland, Tex.—Contract has been let for construction of 44 miles of macadamized roads. These highways will be built from proceeds of a \$50,000 bond election.

Post City, Tex.—Progressive citizens of this country have just succeeded in voting issuance of \$50,000 of good roads bonds and work will commence immediately on building of some of best gravelled and paved turnpikes in state.

San Antonio, Tex.—Five petitions for street widening and opening have been filed.

Ogden, Utah.—Engr. has been instructed to advertise notice of intention for opening of Butler Ave., between 25th and 26th Sts. Cost will be about \$3,000. City Engr. has also been authorized to ask for bids for building of curb and gutter in District 110.

Alexandria, Va.—By majority of 47 bond issue for \$90,000 for improvement of 33 miles of tar macadam roads has been passed by citizens of Mt. Vernon district, Fairfax County. Passage of bond issue means that total of \$116,000 will be expended in that district on three roads, total distance of 33 miles. In addition to \$90,000 the United States Government will contribute, \$16,000 for work, while Fairfax County will put up \$10,000.

Alexandria, Va.—It is expected that work of improving 33 miles of tar macadam roads in Mount Vernon district, Fairfax County, will be begun early next spring. Bond issue in sum of \$90,000 for this was passed in election. In addition to foregoing amount sum of \$16,000 will be contributed by government and \$10,000 by Fairfax County. One of important roads to be improved is that leading over Hunting Creek to Mount Vernon.

Wheeling, W. Va.—Bond election for purpose of drafting bonds to amount of \$280,000 for street improvements will be held over until some time in January.

Seattle, Wash.—Resolutions have been adopted for improvement of various streets.

Seattle, Wash.—Following bids on local improvement contracts have been opened by Board of Public Works: West 86th St. grading: W. F. Manney, \$7,301.50; W. A. Kupoff, \$9,845; J. H. Cullen & Co., \$6,553.50; Peterson & Johnson, \$8,244; Henry Brice, \$8,826.45; L. H. Goerig, \$7,212; V. B. Dilley, \$7,420.75. Rainier Ave., planking: C. O. Gilden, \$13,970.20; Swanson & Bjork Bros., \$13,240.95; L. H. Goerig, \$14,012.25; W. A. Kupoff, \$17,523.50; Walls & Co., \$15,043.85; Thos. H. Ryan, \$14,143.90; Hanson & Co., \$13,070.

Spokane, Wash.—County Commissioners have ordered new survey for three miles of new Palouse highway between Belair and Valleyford, for which part of the road two tentative surveys have already been made. One already made carries road north of Spokane and Inland electric line, crossing it at Belair. Other carries road south of tracks, crossing them at Valleyford. Third survey, ordered to-day, places road midway between two former surveys.

Sultan, Wash.—City Engineer will prepare plans for paving Pine, Main, E. and W. Front Sts.

Tacoma, Wash.—County Commissioners are laying plans for next year's work on Mount Tacoma road and on other proposed highway development. They established approximately a mile of proposed Ohop valley extension road from Eatonville westward, which, when completed, will connect with mountain road and will eliminate long grade known as Ohop Hill. They propose also to extend Puyallup Hill road five miles up valley to Orting, and ultimately to run it on through to South Prairie. It is estimated that county will have about \$540,-

000 available in all funds for road purposes.

Ashtabula, Wis.—At annual meetings of County Boards of Bayfield and Douglas counties favorable reports for building of permanent road between these two counties will be made as result of inspection of intercounty road which has just been made by joint committee of six, representing Bayfield and Douglas counties, and F. M. Sergeant, division highway engineer of state. Road will cost \$100,000.

Stoughton, Wis.—Dane County will spend \$20,000 for road oiling next year, according to Highway Commissioner W. H. Sommers. All improved roads in entire county will be treated with oil next spring.

Calgary, Alberta, Can.—Sum of \$200,000 will be spent on scheme of boulevard improvement in inside districts of Calgary within next couple of years if plan now being considered by City Comrs. and Parks Supt. is approved by Council.

CONTRACTS AWARDED.

Phoenix, Ariz.—By city for street improvements to Barber Asphalt Paving Co., at following prices: 192 sq. yds., bitulithic pavement at \$2.75 per sq. yd., and 150 lin. ft. alley gutter, one-half width only, at 48 cts. per lin. ft.

California.—Following contracts have been awarded for street work in various cities: San Bernardino, to J. S. Hilend, Anaheim, Cal., 21 miles mountain roads for county; earth excavation, 25 cts. per cu. yd.; rock, 90 cts. Willits—To Fairbanks & Baechtel, Willits, contract for 5½ miles state highway in Humboldt County. Pasadena—To J. C. Kinsman at \$3,845 contract to grade, oil, curb and gutter Normandie St., by Council. Los Angeles—To Barber Asphalt Co., contract to improve Sunset Blvd., from Main St. to Marion St., estimated to cost \$150,386, from Public Works Board. San Bernardino—To J. S. Hilend of Anaheim, contracts at \$25,584 and \$16,036 for construction of first and second sections Mill Creek road by County Commissioners. Redwood City—To Clark & Henery of Sacramento contract at \$36,900 for two-mile stretch of road through city of San Mateo, along route of state highway, by Supervisors. San Bernardino—To J. S. Hilend of Anaheim both sections of Mill Creek road, leading toward Bear valley, at about \$42,000 by County Supervisors.

Curtis Oaks, Cal.—Work on installation of concrete curbs and gutters along Second Ave., between 24th St. and Stockton Ave. will start shortly. Contract has been let to F. E. Frey. Price for curbs and gutters is fixed at 62 cts. per ft. Contract for improvement of street with asphalt pavement will be let by Board of Commissioners at later date.

National City, Cal.—To W. N. Parker contract at \$9,623.96 for improvement of Highland Ave. for distance of 40 blocks.

Pasadena, Cal.—For work on Normandie St., described in section 1, to J. C. Kinsman at following prices: Grading per lin. ft., 73 cts.; curb per lin. ft., 27 cts.; gutter per sq. ft., 15 cts.; oiling per lin. ft., 98 cts. H. Dyer is City Clerk.

Redding, Cal.—Jesse Sutter, Anderson contractor was successful bidder before Supervisors for building change in Hattie Creek Mountain road from Whisky Bend to Fuller place. Sutton's bid was \$1,678 lower than highest. Bids were these: Paul M. Erickson, \$4,825; Fred Conrad, A. J. Michaelson and Fred Haynes, \$4,331; Burtis & Wagner, \$4,848; W. A. Calkins, \$3,925; Jesse Sutton, \$3,170.

Redwood City, Cal.—To Raisch Improvement Co. of San Francisco contract for paving of state highway through Redwood City, which will be done under county's \$1,250,000 bond issue for good roads. Amount of bid was \$32,825, and work must be completed in three months. Length of road to be improved is 1½ miles. Pavement will be 20 ft. wide with 7 ft. macadam shoulders, specifications calling for 5-in. concrete base and 1½-in. of asphalt wearing surface.

San Jose, Cal.—Bids aggregating a little more than \$22,000 have been received by Council from Federal Const. Co. for improvement of West Santa Clara St. from Gaudalupe bridge to Southern Pacific tracks and on San Fernando St. from Delmas Ave. to Los Gatos Creek. First reading was given to awards to this company. Work means the covering of these streets with standard pavement, installation of curbs, gutters and catch basins, thus putting these on basis with the best cared-for streets in city. The Santa Clara figure is \$18,944.65 and San Fernando job \$3,357.83.

Denver, Col.—By Board of Public Works, contract to Warren Bros. & Co. for paving W. 32d Ave. from Tejon St. to Boulevard; F and Tejon St. from W. 34th Ave. on north side, at \$24,072.

Pocatello, Idaho.—To Strange, Maguire Paving Co., Salt Lake City, Utah, for bitulithic paving on First Ave., at \$30,-324.

Alton, Ill.—By Board of Local Improvements for construction of vitrified brick pavement and improvement of alleys between 4th and 5th Sts., to C. H. Degenhardt.

Amboy, Ill.—For constructing 2 miles stone road by Township Highway Comrs. to E. B. Lloyd and E. P. Miller, of Dixon, Ill., at \$1.74 per sq. yd.

Evansville, Ind.—By Commissioners of Vanderburgh County, contract to Reichenert & Stinchfield, Evansville, Ind., for construction of road in Perry Township, at \$13,440.

Fort Wayne, Ind.—To Erie Stone Co. of Huntington, at \$11,779 for Collier stone road in Monroe Township.

Franklin, Ind.—By Johnson County Commissioners contract for building of H. W. Ragsdale gravel road to Edward and Everett Barnett on their bid of \$4,020.

New Castle, Ind.—To James Garvey at \$2,758 to improve North 16th St. with cement sidewalks, curb and gutter by Council.

Terre Haute, Ind.—To Foulkes Contracting Co., at \$1.25 per cu. yd. for paving.

Marshalltown, Ia.—For relaying sidewalk on west side of S. First Ave. to Elzy & Carlson at 10½ cts. per sq. ft.

Jeffersonville, Ky.—Board of Commissioners of Clark County, Ind., has awarded contract to Thomas F. O'Neill for building what is known as the James Jacobs road in Utica Township, which is about 3 miles long. The contract price is \$13,877. The bids were as follows: Thomas F. O'Neill, \$13,877; William C. Richardson and Harry J. Fry, \$13,319; Wilk & Co., \$13,941; Robert Grayson, \$13,947.50; Cornelius J. Signam, \$14,337; Peacock & Maggard, \$14,360.

Lexington, Ky.—To Central Construction Co., for construction of concrete curb and gutter on Ransom Ave. at following bid: Cement curb, 49 cts. per ft.; combined cement curb and gutter, 34 cts. per ft.; cement curb with steel protection, straight, 75 cts. per ft.; cement curb with steel protection, radii, 90 cts. per ft.

Lexington, Ky.—To Casey-Reed Co. for improvement of Ransom Ave., from Main St. to High St., by construction of roadway thereof with asphalt paving, type "A," with the materials hereinafter specified, which are hereby selected and determined upon for said improvement at following prices: Asphalt pavement, Type "A," \$1.30 per yd.; concrete, \$4.80 per cu. yd.; resetting manhole tops, \$2.50 each; manholes, new, \$30 each; resetting old catch basins, \$2.50 each; catch basins, new, \$40 each.

Louisville, Ky.—Board of Park Commissioners has awarded contract for construction of Western Parkway from Greenwood Ave. to Gibson's Lane to J. H. Cahill Co. Contract for construction of Beale branch road from Eastern Parkway into Cherokee Park has been awarded to Henry Bickel Co.

Opelousas, La.—By Board of Aldermen contract for constructing nine blocks of creosoted wood blocks to Mr. Hyams at \$2.58 per square. Work is to begin within next two weeks, and it is expected to be completed by the first of the year. Other streets will be paved with gravel.

New Orleans, La.—Bourg & Serpas were lowest bidders when five bids were opened by Board of State Engineers for construction of revetment or reinforced concrete walks from Upper Protection Levee to South Port Levee, embracing approximately 9,500 sq. yds. Revetment is located on left bank of levee and lowest bidders are willing to do work at 99 13-100 cts. per sq. yd. Entire subject was referred to Major Frank M. Kerr, the chief engineer, for a report.

Boston, Mass.—By Metropolitan Park Comm., for grading, surfacing, etc., Woburn Parkway, from Pleasant St., Woburn, to Pond St., Winchester, to Middlesex Contracting Co., of Wrentham, Conn., at the following bid: 40,000 cu. yds. earth grading, 31 cts.; 3,000 cu. yds. rock grading, \$1; 1,650 lin. ft. 10-in. vitr. pipe drain, 45 cts.; 700 lin. ft. 12-in., 60 cts.; 130 lin. ft. 30 in. 2 ft.; 37 catch basins and manholes, each \$28; 400 lin. ft. straight edgestone, 80 cts.; 300 lin. ft. curbed edgestone, \$1; 300 cu. yds. loam surfacing, 75 cts.; 8,000 cu. yds. to be furnished

by contractor, \$1.35; 15,500 sq. yds. roadway surfacing, 40 cts.; 5,000 sq. yds. walk surfacing, 20 cts.; 1 reinforced concrete culvert, \$1,000; total, \$37,703. Totals of other bids: D. M. Biggs & Co., Dorchester, \$62,520; T. A. Moynihan, South Hamilton, \$57,532; Long & Little, Leominster, \$52,651; Henry Spinach Contracting Co., Waterbury, Conn., \$51,642; Jas. McCormick, East Providence, R. I., \$51,147; International Construction Co., Boston, \$48,803; Coleman Bros., Chelsea, \$47,095; Chas. A. Kelley, West Somerville, \$43,402; Rowe Contracting Co., Brighton, \$43,230, and Jas. H. Fannon, Comererville, \$43,097.

Boston, Mass.—To Middlesex Contracting Co., Putnam, Conn., for improvement of Woburn Parkway for Metropolitan Park Commission at \$37,703; 40,000 cu. yds. earth grading, 3,000 cu. yds. rock, 23,500 sq. yds. surfacing; 2,350 ft. vitrified pipe.

Camden, N. J.—To Fisler & Sons, of Camden, for reconstructing road from Tansboro to Cedar Brook at about \$10,000.

Perth Amboy, N. J.—To Thos. H. Ridde, of New Brunswick, 26,432 sq. yds. Dolarway pavement on section of Roosevelt Woodbridge road.

Brooklyn, N. Y.—For following street improvements as follows: For asphalt pavement on a 6-in. concrete foundation on Maple St. from Bedford Ave. to Rogers Ave., the Borough Asphalt Paving Co., 1301 Metropolitan Ave., Brooklyn, at \$8,197; for preliminary asphalt pavement on a 5-in. concrete foundation on 73d St. from 10th Ave. to 11th Ave., the Uvalde Contracting Co., Broadway, New York, at \$5,297.

Rensselaer, N. Y.—For paving with brick lower Broadway by Board Contract & Supply to James J. Rigney, of Rensselaer at \$10,356.

Syracuse, N. Y.—To John Young, for asphalt and vitrified brick on paving Lodi St., between Danforth and Court Sts., by the Board of Contract and Supply. His proposal on brick was \$5,706.50; on asphalt, for five years' guaranty, \$5,160.50, and for ten years' guaranty, \$5,242.50.

Ashtabula, O.—To T. P. Fitzgerald by Director of Public Service, for paving Main St., subway, at \$12,750.

Cincinnati, O.—By Board of County Commissioners contract to Elmer Nugent, for following county work under Specification No. 555, for repair of Cleves Road, from Miami Ave., Cleves to Blue Rock Pike, Miami and Colerain Townships, at \$31,062.

Cleveland, O.—By Department of Public Service contracts for construction of concrete sidewalks on nine streets to O. J. Leach, 484 Eddy Road, Cleveland, O., and M. P. Platten, 3100 Lorain Ave., Cleveland, O., at \$20,000 and \$1,000 respectively.

Dayton, O.—For setting combined curbing and gutters, with boulder borders, and paving sidewalks with cement on St. Nicholas Ave., from Gatch St. to Wyoming St., to Clifton Hoolihan; for same improvement on Britt St. from Linden Ave. to Sand St., to Geo. R. Stattemann.

Mansfield, O.—Following contracts have been awarded by city for grading and street improvements: L. Wildeson & Son, \$27,653, grading and sidewalks for nine streets; J. W. Paule, \$3,221, paving Bell St. with brick; J. W. Paule, \$2,061, paving Center Ave. with brick.

Milan, O.—To Buckeye Engineering Co., of Norwalk, O., at \$5,535 for grading and paving with water bound macadam the Milan-Elyria road, 1½ miles east of Milan, to be one mile long and 12 ft. wide.

Youngston, O.—By Board of Control to Kennedy Bros. for Willis Ave. paving job, and to James McCarren for Portland Ave. and Maryland Ave. paving.

El Reno, Okla.—To Connelly Construction Co., El Reno, at 10% cts. per ft. for 28,831 sq. ft. of cement sidewalks, along 17 blocks, including 460 cu. yds. excavation and 230 cu. yds. embankment.

Pittsburgh, Pa.—For paving with brick Corliss St. by Mayor to M. O. Herron Co., First and McKean Sts., at \$179,681.

York, Pa.—Contracts for completion of State St. paving and for paving of West Market St. between West St. and Belvidere Ave. with vitrified brick have been let by Highway Comm. of City Council. Both went to General Supply & Const. Co. Two bids submitted were as follows: General Supply & Const. Co., wood blocks, \$2.75 per sq. yd.; vitrified brick, grout filler, \$2.25 per sq. yd.; pitch filler, \$2.29; asphalt filler, \$2.29. A. B. Kraft, vitrified brick, cement filler, \$2.30 per sq. yd.; pitch filler, \$2.40; asphalt, \$2.40.

Landrum, S. C.—At its recent meeting Town Council awarded contract for building cement sidewalks and curbing to Kerlin & Co., of Atlanta.

El Paso, Tex.—Approximately \$19,500 is the first amount to be expended for asphalt and stone for proposed county roads. Contracts involving that expenditure were awarded by County Judge A. S. J. Eylan and County Engineer Herbert Nunn Saturday, after bids on asphalt and rock asked for, were submitted. Atlas Asphalt Co., of Los Angeles, Cal., secured largest share of contract for asphalt, being awarded contract of furnishing about four-fifths of the 600 tons of asphalt which will be ordered for the roads. Total sum that will be expended for asphalt alone will amount to \$12,000. The Magnolia Petroleum Co., of Houston, Tex., was given the contract for the asphalt to be used for topping, called the "flush coat." The Atlas Co. submitted a bid of \$20 a ton for asphalt, and while the Petroleum Co.'s bid was \$19.40, 60 cts. cheaper, on recommendation of Capt. Nunn that the California product was the better material, the main contract for asphalt was let to the California company. Dr. J. B. Brady, of Southwestern Paving Co., bidding 57½ cts. per ton on 20,000 tons of rock, received the contract. A. Courchesne submitted a bid of 60 cts. and Dudley & Orr, 69 cts.

Midland, Tex.—For construction and improvement of 44 miles of good roads to West Texas Bridge & Construction Co.

Sherman, Tex.—West Pecan, West Mulberry, North Elm, Wall St. and East Lamar from Travis to Throckmorton St. have been added to thoroughfares to be paved in Sherman, when contracts were let to Levy & Levy and the Bert Hahn Construction Co.

Burlington, Wash.—To Cascade Construction Co. of Seattle, for Dolarway pavement at \$10,472.

Seattle, Wash.—By Board of Public Works for grading of West Dawson St. to P. J. McHugh, at \$26,405.85.

Spokane, Wash.—By Co. Comrs., to John Fife, the contract for paving Market St. extension, north of Hillyard, part of permanent highway No. 7, for \$18,488 for Warrenite paving. This is first experiment of county with patented pavement. Bids received are as follows: Warrenite, estimate, \$20,548; C. M. Payne, \$19,995; John Fife, \$18,844. Asphaltic concrete and macadam—Estimate, \$15,348; Mitchell Bros., \$17,377.70; John Fife \$14,456; Mulligan Brothers & Foster, \$14,583. Asphaltic concrete—Estimate, \$18,598; Spokane Bitumas Paving Co., \$20,000; Mitchell Bros., \$18,151.80; John Fife, \$17,700; Mulligan Bros. & Foster, \$11,983. Straight macadam—Estimate, \$8,848; Mitchell Bros., \$11,059.55.

Kenosha, Wis.—To Petersen Construction Co. to pave West Prairie Ave. from Charles St. to city limits at \$10,468.

SEWERAGE

Gadsden, Ala.—City Engineer will shortly prepare plans for about 1½ sq. miles of sewers for west end of town.

Reedley, Cal.—Bonds in the sum of \$40,000 have been voted for construction of sewer system.

San Jose, Cal.—City Engr. Irving L. Ryder has been instructed to prepare plans for storm sewer on Owen St. running from 24th west to the Coyote Creek.

Stamford, Conn.—Appropriation of \$2,000 will be asked to complete installation of storm water drain in lower Pacific St.

Alapachicola, Fla.—Extension of sewer system is being planned.

Clearwater, Fla.—City will vote Nov. 25 on \$10,000 bonds to extend or improve sewer system. Chas. H. Evans is Mayor.

Tarpon Springs, Fla.—City will vote Nov. 19 on \$30,000 bonds for repairing and extending sewer and water systems. H. B. Webster is Mayor.

Burlington, Ia.—City Council has decided to float bonds to amount of \$30,000 to pay for the Hawkeye sewer and branches.

Hutchinson, Kan.—City will construct sewer line to river. It will be a concrete pipe, about a mile long.

Paducah, Ky.—City Engineer L. A. Washington has been instructed to install sewer at Sixth and Husbands Sts. to relieve bad drainage.

Baltimore, Md.—In a general way, Sewerage Engineer Calvin W. Hendrick has announced boundaries of territory to be sewered under additional sewerage loan of \$3,000,000, which will be asked of next Legislature and placed before voters at election next fall.

Baltimore, Md.—Sewerage Commission will shortly advertise for bids for building Section No. 9 of the High Level Interceptor, including 2,350 lin. ft. of 27-in. sewer, 700 lin. ft. 33-in. sewer, and 2,450 lin. ft. of 39-in. sewer. Alternative bids will be asked for construction of this sewer of reinforced concrete pipe, vitrified segmental block and monolithic concrete pipe with brick invert. Calvin W. Hendrick is Chief Engineer.

Elizabeth, N. J.—Ordinances have been passed for construction of various sewers.

Irvington, N. J.—Ordinance has been adopted for construction of storm water sewer to drain territory now draining to 16th and Myrtle Aves.

Irvington, N. J.—Ordinance has been passed for construction of sanitary sewer in 21st St. M. Stockman is Town Clk.

Albany, N. Y.—Construction of sewage disposal plant is being considered.

East Port Chester, N. Y.—Plans are being made for installation of sewers.

Le Roy, N. Y.—Plans will be prepared by Witmer & Brown, Engrs., Buffalo, for the proposed sewer system.

Cincinnati, O.—Sewer bonds in sum of \$24,000 have been sold to P. J. Goodhart & Co.

Coshocton, O.—Installation of sewage treatment plant is being considered. Estimated cost is \$100,000.

Youngstown, O.—Resolution has been adopted for construction of sewer in Champion St.

Youngstown, O.—Bids will be received at 2 p. m., Nov. 17 at office of D. J. Jones, City Auditor, for purchase of bonds for sewer improvements.

Enterprise, Ore.—Plans have been completed for construction of a sewer system, to cost about \$20,000.

Altoona, Pa.—By Bd. of Pub. Works, contract for outfall sewer leading from city to proposed plant, to James Ferry & Sons, of Pittsburgh.

Erie, Pa.—Construction of 24-in. tile sewer in Fourth St. is being planned.

Erie, Pa.—Resolution has been introduced in Select Council calling for a 24-in. sewer in Fourth St., between Ash and Reed Sts., to carry away surface water and drain lots in vicinity of Fourth, Fifth and Ash Sts. Resolution instructed City Engineer Briggs to prepare plans for sewer and City Solicitor English to draw ordinance.

Hanover, Pa.—Ordinance has been passed calling election to vote on increasing indebtedness of borough by sum of \$30,000 for construction of sanitary sewerage system and disposal plant. S. J. Rudisill is Pres. of Town Council.

Harrisburg, Pa.—City Engineer has prepared plans for extension of sewer system. Bond issue of \$100,000 is being considered for the purpose.

Lock Haven, Pa.—Plans are being prepared by T. C. Hatton, Engr., Wilmington, Del., for improvement of sewer system to cost \$175,000.

Sioux Falls, S. D.—Resolution has been adopted to purchase portions of sewerage system owned by Union Sewer Association.

Dallas, Tex.—Bids have been ordered for laying of sanitary sewer in South Pearl St. from Gano to Hickory.

Ogden, Utah.—Resolution has been adopted for construction of pipe sewer on Ballantyne Ave. H. J. Craven is City Engr.

Burlington, Vt.—Extension of sewer pipes has been authorized.

Norfolk, Va.—Board of Control has opened bids for construction of concrete drain in Berkley, between Pendleton and Clifton Sts. Estimates were submitted by L. Lawson at \$6.50 and F. J. McGuire at \$6.47 per lin. yd. Bids were referred to city engineer.

Bluefield, W. Va.—Bluefield has voted by big majority \$135,000 in bonds for improvements in fire department and city sewers.

Seattle, Wash.—Resolutions have been adopted for construction of various sewers.

CONTRACTS AWARDED.

Los Angeles, Cal.—To Meagenovich & Gillespie contract at \$38,900, for construction of sewer in Lorena St., from Percy to Eagle St.

Oakland, Cal.—To Philip Schuyler for constructing sewer with appurtenances in 76th Ave. from East 14th St. north-easterly.

Emmett, Idaho.—To Parrott Bros., of Salt Lake City, Utah, at \$12,744, to construct sewer in district comprising about one-half the city.

Genoa, Ill.—By City Council contract for construction of sewerage system to M. Lanyon, Waukegan, at \$17,987. Other bids were: C. E. Hughes, Rockford, \$22,000; Vito Graziana, Chicago, Ill., \$21,487; L. E. Barnes, Hobart, Ind., \$19,810; William Higgins, Joliet, \$19,016; Henry Rees, \$23,012.

Springfield, Ill.—By Bd. of Loc. Impts., contract for 18-in. sewer in Ash St., from Middle St. to 11th St., to R. F. Egan, at rate of 79c. per lin. ft. for sewer, 40c. per lin. ft. for inlets and \$25 for each manhole. F. H. Hamilton is Pres. Bd. of Loc. Impts.

Taylorville, Ill.—To Horace McBride, of Carlinville, Ill., at \$6,400, for constructing southeasterly sanitary sewer.

Indianapolis, Ind.—K. W. Brewer has assigned contracts for building local sewers in Burdick Parkway from Schurman Ave. to Belt railway tracks and in alley north of 25th St., from Clifton to Annette Sts., to Sheehan Construction Co. Board of Public Works has given its approval.

Kingsville, Tex.—Following are bids received for construction of sewerage system and a sewage disposal plant. Both contracts were awarded to Hamilton Bros. Construction Co. of Taylor, Tex. Unit prices are especially low, due to favorable conditions for economical machine work and the fact that there are no pavements and very few water mains. Sewage disposal plant consists of a reinforced concrete settling tank, sludge beds and sterilization chamber. Plant is designed to treat from 300,000 to 400,000 gallons a day. Bidders for sewerage system: (A) Hamilton Bros. Construction Co., Taylor, Tex.; (B) Nystrom Bros. and F. L. Sargent, San Benito, Tex.; (C) Scott Brown and L. D. Crawford, San Benito, Tex.; (D) Watt & Co., San Antonio, Tex.; (E) H. B. Nelson & Sons, Muskogee, Okla.; (F) Truehart & Jackson, San Antonio, Tex.; (G) Winslett-Eldridge Co., Dallas, Tex.; (H) Plummer-Adams Co., Springfield, Mo.; (I) Dalton & Campbell, Dallas, Tex. Alexander Potter, Consulting Engineer, New York City:

Items.								
100 cu. yds. rock excavation.....								
*500 cu. yds. quicksand.....								
13,065 lin. ft. 8" vitrified pipe sewer, 0-6 ft. deep.....	.40	.39	.40	.345	.46	.46	.41	.52
20,675 lin. ft. 8" vitrified pipe sewer, 6-8 ft. deep.....	.43	.44	.42	.437	.493	.46	.47	.54
2,930 lin. ft. 8" vitrified pipe sewer, 8-10 ft. deep.....	.45	.50	.45	.475	.56 1/2	.65	.52	.56
1,190 lin. ft. 8" vitrified pipe sewer, 10-12 ft. deep.....	.54	.55	.48	.52	.632	.81	.54	.59
746 lin. ft. 10" vitrified pipe sewer, 8-10 ft. deep.....	.53	.60	.50	.55	.643	.69	.60	.57
2,640 lin. ft. 10" vitrified pipe sewer, 10-12 ft. deep.....	.57	.70	.54	.58	.71	.85	.62	.64
2,443 lin. ft. 10" vitrified pipe sewer, 12-14 ft. deep.....	.65	.80	.58	.61	.81	.98	.66	.74
540 lin. ft. 12" vitrified pipe sewer, 10-12 ft. deep.....	.68	.75	.70	.805	.887	.83	.74	.75
810 lin. ft. 12" vitrified pipe sewer, 12-14 ft. deep.....	.81	.85	.75	.86 1/4	.987	.97	.78	.95
90 lin. ft. 12" vitrified pipe sewer, 14-16 ft. deep.....	1.00	.95	.80	.94	1.09	1.22	1.00	1.12
1,945 lin. ft. 15" vitrified pipe sewer, 12-14 ft. deep.....	.95	1.00	1.15	.98 1/4	1.22	1.27	1.08	1.18
585 lin. ft. 15" vitrified pipe sewer, 14-16 ft. deep.....	1.25	1.25	1.30	1.08	1.32	1.27	1.18	1.35
280 lin. ft. 18" vitrified pipe sewer, 0-6 ft. deep.....	1.05	1.10	1.25	1.11	1.263	1.11	1.42	1.13
200 lin. ft. 18" vitrified pipe sewer, 6-8 ft. deep.....	1.10	1.15	1.30	1.23	1.33	1.11	1.45	1.15
115 lin. ft. 18" vitrified pipe sewer, 8-10 ft. deep.....	1.15	1.20	1.35	1.25	1.44	1.35	1.48	1.19
1,810 lin. ft. 18" vitrified pipe sewer, 10-12 ft. deep.....	1.20	1.30	1.45	1.29	1.54	1.37	1.50	1.26
1,771 lin. ft. 18" vitrified pipe sewer, 12-14 ft. deep.....	1.30	1.50	1.55	1.46	1.65	1.60	1.52	1.46
1,174 lin. ft. 18" vitrified pipe sewer, 14-16 ft. deep.....	1.40	1.70	1.65	1.54	1.76	1.60	1.54	1.63
140 manholes	39.00	35.00	50.00	70.00	3 .00	45.00	65.00	46.00
61 lin. ft. drop manhole.....	1.00	1.50	5.00	.75	3.00	.50	.60	2.00
16 flush tanks	75.00	70.00	100.00	91.50	76.00	80.00	60.00	85.00
2 special flush tanks.....	300.00	300.00	300.00	300.00	300.00	300.00	300.00	300.00
380 T branches on 8" pipe.....	.88	.50	1.00	1.25	.93	.50	1.00	.65
58 T branches on 10" pipe.....	1.20	.60	1.30	1.63	1.30	.65	1.28	.80
14 T branches on 12" pipe.....	1.60	.70	1.75	2.15	1.60	.80	1.79	1.05
25 T branches on 15" pipe.....	2.50	.80	2.75	2.25	2.55	1.25	2.75	1.55
55 T branches on 18" pipe.....	3.60	.90	3.90	4.70	3.72	1.70	4.10	2.15
84 lin. ft. 18" c.i. pipe.....	1.00	2.00	2.25	4.00	5.00	2.00	3.00	3.50
30 cu. yds. conc. masonry, Class A.....	8.00	10.00	12.00	10.00	10.00	9.00	14.25	12.00
25 cu. yds. conc. masonry, Class B.....	7.00	7.00	11.00	8.75	9.00	8.00	12.25	10.00
20,000 ft. B.M. of sheeting and timber.....	27.50	27.50	27.50	27.50	27.50	27.50	27.50	27.50
*557 lin. ft. deep-cut connections.....	.30	.15	1.00	.25	.25	.50	.60	.70

Total \$40,200.83 \$41,080.80 \$44,315.54 \$45,578.56 \$46,662.40 \$46,877.14 \$47,428.96 \$47,650.67 \$52,342.93

*Prices fixed by contract.

Lexington, Ky.—To Thomas O'Day for construction of West Main St. sewer from Mil' St. to Broadway.

Lexington, Ky.—Bids of Central Construction Co. for construction of north side main sewer are lowest that have been submitted and contract will be awarded at early date. Bids were opened in Mayor's office October 25th and lowest bids were made by Central Construction Co., \$35,600.20, and Thomas O'Day, who bid \$35,967.60.

Lexington, Ky.—To Central Const. Co., 356-362 E. Main St., Lexington, for constructing Northern main sewer, at \$35,600. White Guynn is City Engr.

Lexington, Ky.—To Carey-Reed Co. for construction of sanitary sewer on Campsie Place at following prices: 8-in. pipe, 60 cts. per ft.; 5-in. pipe, 40 cts. per ft.; 5-in. Y branches on 6-in. pipe, 40 cts. each; manholes, \$25 each; flush tanks, \$55 each.

Perth Amboy, N. J.—Bids have been received for laying sewer in Convery Pl. from Sayre Ave. to New Brunswick Ave., as follows: P. J. Monaghan, 15-in. sewer, per lin. ft., \$1.25; 6-in. sewer, per lin. ft., 55 cts.; manholes, each \$33. Carl Poulsen, 15-in. sewer, \$1.10; 6-in. sewer, 58 cts.; manholes, each, \$31. Christian Peterson, 15-in. sewer, \$1.04; 6-in. sewer, 47 cts.; manholes, each \$35. Liddle & Pfeiffer, 15-in. sewer, \$1.18; 6-in. sewer, 60 cts.; manholes, each, \$32. Contract has been awarded to Christian Peterson.

New York, N. Y.—To Peace Bros., at \$4,627, contract for sewer in Onderdonk Ave., Ridgewood, from Troutman St. to Suydam St., and in Starr St., from Onderdonk Ave. to Boro. line.

Dayton, O.—Recommendations of Service Director Lebold to Board of Control that contracts be awarded for various improvements have been accepted as follows: Construction of storm sewer on Bowen St., between Wyoming St. and Lorain Ave., to Boyd & Cook at their bid of \$27,438.75; also for storm water sewer on West Third St., from Abbey Ave. to Fry Hollow Creek, to Boyd & Cook at their bid of \$5,129, and construction of sanitary sewers in sewer district No. 5, on Lowes St., from Evanston Ave. to point 192 ft. east, to C. F. Smith at his bid of \$176.40.

Plymouth, Pa.—To Herrick Const. Co., at \$5,536, contract by Boro. Council for constructing sewer from Cherry St. to Browns Creek in rear of Main St.

York, Pa.—To General Supply & Const. Co. for completion of State St. sewer as follows: 42-in. brick, \$5.35 per ft.; 24-in. terra cotta pipe, \$1.90 per ft.; 12-in. terra cotta pipe, 80c. per ft.; excavating rock, \$3 per cu. yd.; manholes, \$40 each; constructing inlets, \$50 each.

York, Pa.—By Highway Committee, contract to General Construction & Supply Co. for extension of Vine St. storm water sewer.

Kingsville, Tex.—By city for construction of sewerage system and sewage disposal plant to Hamilton Bros. Construction Co., Taylor, Tex., at \$40,200.83 and \$6,304.70, respectively. Alexander Potter, 50 Church St., New York City, Contractor.

Ogden, Utah.—To J. P. O'Neill Const. Co., contract for building sewer district No. 120.

Norfolk, Va.—To F. J. McGuire contract for construction of reinforced concrete drain to run from Pendleton St. to and across Clifton St., Berkley, at \$6.47 a running foot.

Seattle, Wash.—Board of Public Works for sewer outfall in West Harrison St. to Syllaasen, Sands & Peterson, \$12,662.

Oshkosh, Wis.—For constructing sewers as follows: Stringham Creek, 1,200 ft. and 600 ft., J. Rasmussen & Son, 130 Main St.; 3 blocks 15 and 18-in. vitrified pipe sewer in W. Algoma St., August Strey, 99 Powers Ave. George Randall is City Engr.

WATER SUPPLY

Bessemer, Ala.—City Council is considering purchase of Bessemer Water Works Co.'s plant.

Davis, Cal.—Plans are being made for improvements to water system. Plans proposed are for larger pumping plant, concrete standpipe 108 ft. high, at top of which will be reservoir of 50,000 gals. capacity reserved for fire purposes alone. Reservoir for domestic and general purposes will be beneath fire reservoir and will have capacity for 250,000 gals. New mains will be laid throughout town, a 6-in. one leading from the plant to State Farm, with 4-in. laterals around each block. Mains will be extended throughout new subdivision north of town.

Red Bluff, Cal.—The date is fixed at Red Bluff for election to vote on issuing bonds of \$85,000 for purchase of existing private water plant, or equal amount for installation of municipal plant, and \$8,000 for sewer extension.

San Diego, Cal.—Expenditure of \$200,000 is considered by city for construction of pumping station in Mission Valley.

Bristol, Conn.—Bond issue is being considered for purchase of Bristol Water Co.; estimated cost \$500,000.

Stamford, Conn.—Appropriation of \$1-165 will be asked to complete Pacific St pumping station.

Apalachicola, Fla.—Extension to water system is being planned.

Pass-a-Gulie, Fla.—Electoral will be held Dec. 1 for voting on \$3,000 for completion of waterworks system.

Tarpon Springs, Fla.—City will vote Nov. 19 on \$30,000 bonds for repairing and extending water and sewer systems. H. B. Webster is Mayor.

Mishawaka, Ind.—Board of Public Works has ordered construction of water mains on Broadway.

Richmond, Ind.—Water mains extensions are being considered.

Des Moines, Ia.—Waterworks election will be held in connection with regular city election March 23, 1914. Mayor Hanna's plan of municipal control of the waterworks will also be placed before voters.

Winfield, Ia.—Bids will be received in December for constructing proposed water works, from plans of Des Moines Bridge Co., of Des Moines, cost \$15,000. J. O. Kilbourn is City Clerk.

Westmoreland, Kan.—Citizens have voted to issue \$15,000 bonds for construction of water works, from plans of Worley & Black, of Kansas City, Mo. Warren Anthony is City Clerk.

Anchorage, Ky.—Town of Anchorage has voted to issue \$25,000 worth of bonds with which to establish waterworks by tapping Lakeland main.

Carlisle, Ky.—Electoral has been asked for voting on \$30,000 bond issue for waterworks system.

New Albany, Ky.—Construction of filtration plant in connection with New Albany water system is recommended.

Paducah, Ky.—Request of property owners for extension of water mains on Hayes Ave., Ashcraft Ave. and Thurman St. in Mechanicsburg has been referred to Paducah Water Co.

New Orleans, La.—Sewerage and Water Board will shortly advertise for bids for manufacture of 11 effective pumps.

Mattapoisett, Mass.—Extension of water system is being planned. About \$52,000 water bonds have been sold to Boston brokers.

Saginaw, Mich.—Estimate will be made of cost of proposed pumping station and filtration plant.

Hibbing, Minn.—Earl D. Jackson, a consulting engineer of St. Paul, has been employed by Council and Board to make thorough examination of land south of Hibbing to determine if possible whether sufficient supply of water could be secured.

Moorhead, Minn.—Bids will shortly be advertised for a deep well pump, 50,000 gal. steel tank, and a hypo-chloride plant.

Columbus, Mont.—At special election held in Columbus, taxpayers decided to install municipal water system by vote of 53 to 15.

Dover, N. J.—Board of Water Commissioners, having made satisfactory arrangements with councilmen-elect to include in 1914 budget amount equal to that required for laying of water mains in Elk and Mase Aves., and also West Dickerson St., has placed order for mains and work will be commenced at once.

Lestershire, N. Y.—Election will be held Nov. 8 to vote on question of issuing bonds for \$15,000 for extension of water system.

Newburgh, N. Y.—Action looking to electrification of water pumping station has been taken by Water Commissioners and this project is likely to be carried out.

Warsaw, N. Y.—Village of Varysburg, through its fire commissioners, John Wolf, J. H. Laird and Thomas Murphy, has contracted with H. B. Maxon to furnish 18 hydrants and supply village with water for fire protection.

Conway, N. C.—Preliminary surveys are being made by J. B. McCrary Co., Atlanta, Ga., for construction of water system.

Raleigh, N. C.—Remaining \$50,000 waterworks bonds will now be sold. These will be for extension of mains, installation of meters and other purposes.

Cincinnati, O.—City Council is considering expenditure of \$134,000 for laying new water force main from Western Hills Pumping Station to city.

Youngstown, O.—Bids will be received at 2 p. m., Nov. 17 at office of City Auditor for purchase of \$300,000 water works extension bonds. D. J. Jones is City Auditor.

Eugene, Ore.—For the second time, all bids were rejected for sale of \$100,000 water extension bonds by City Council.

Portland, Ore.—Water bonds amounting to \$22,000 have been sold to A. C. U. Berry for 93.78 cts. on the dollar. Barry is the contractor who is lowering two old submerged pipe lines across Willamette, and when he was awarded contract he agreed to take water bonds at their market value in payment for his work.

Reading, Pa.—Select Council bill No. 51 has been introduced to make additional appropriation of \$21,000 to the Dept. of Water for: Operating and maintaining Maiden Creek pumping station, \$7,000; operating and maintaining gravity supplies, filters, reservoirs and distributing system, \$5,000; new mains, fire hydrants, attachments and improvements to distributing system \$2,000.

Nashville, Tenn.—Installation of more water mains have been recommended.

Fort Worth, Tex.—Water Commissioner Blanke has reported to City Commission that it will cost \$1,500 to extend city water mains on South Hemphill St., a distance of three blocks.

Burlington, Vt.—Extension of water pipes has been ordered.

Petersburg, Va.—Council has appropriated sum of \$25,000 for laying of water main from locks to St. Andrew pumping station.

Wheeling, W. Va.—Installation of filtration plant is being discussed.

Spokane, Wash.—Petitions have been received asking for installation of water mains in Glenwood Park.

Racine, Wis.—City will purchase water plant.

Niagara Falls, Ont., Can.—Engr. Carl Gardner has been commissioned by Stamford Council to prepare plans for the new waterworks. He will commence the work immediately.

CONTRACTS AWARDED.

Hartford, Conn.—Hanover Const. Co. of New York City will sublet part of contract for laying Nepaug pipe line to Hanscomb Contracting Co., of Boston, Mass., to include laying of main pipe for 3½ miles.

Burlington, In.—To McCloskey & Co., of Chicago, contract for new pumping plant in Henderson County by Commissioner of Drainage Districts Nos. 1 and 2. New plant will be large enough to take care of entire district and will be constructed of brick with concrete foundation. A boiler, steam engine and two 48-in. pumps complete the equipment.

Tipton, In.—To J. W. Turner Imp. Co., at \$2,000, for extending water mains.

What Cheer, In.—To National Co., of South Bend, Ind., for constructing water works at \$18,750.

Boston, Mass.—To General Electric Co., Lynn at \$175,357, for electric pumping plant for Charles St. station for city.

McComb, Miss.—By Board of Mayor and Selectmen contract for laying of 3,000 ft. of 4-in. water mains to B. A. Heidenreich Co., a local concern.

Polk, Neb.—For construction of additions to water system and electric light plant to Alamo Engine & Supply Co., Omaha, Neb., at \$11,325.

North Tonawanda, N. Y.—To Frontier Contracting Co., Buffalo, contract at \$2,638.50, for building water mains in Clinton, Morgan, Niagara and Hanover Sts., North Tonawanda.

Seattle, Wash.—By City Council for construction of water mains in Sixth Ave., to L. R. Ellis, Seattle, at \$15,428.

St. Vital, Man.—By City Council contract for construction of water system here to Guilbault Co., Ltd., St. Boniface, Man., at \$58,000.

LIGHTING AND POWER

Los Angeles, Cal.—City Council has passed resolution providing for election on proposed power bonds as a unit.

Southington, Conn.—Improvement of lighting system is being discussed.

Pass-a-Gulie, Fla.—Electoral will be held Dec. 1 for voting on \$2,500 for electric light plant.

Batavia, Ill.—The Batavia Commercial Club are considering plans for extension of ornamental street lighting system.

Batavia, Ill.—Plans are being considered by Batavia Commercial Club for extension of ornamental lighting system.

Galesburg, Ill.—The Galesburg City Council has before it resolution looking to municipality furnishing electric light and power to private consumers, under act passed by last legislature.

Moline, Ill.—The People's Power Co. is discussing changing present street lighting system to magnetite arc lamps.

Fort Wayne, Ind.—Extension of boulevard lighting system is being discussed.

Whitesburg, Ky.—City will shortly advertise sale of electric light franchise. C. H. Burton is Engr.

Taunton, Mass.—Municipal Council will vote on appropriating \$5,200 for purchase of additional boiler for municipal lighting plant.

Worcester, Mass.—Installation of ornamental street lighting system has been ordered according to plans prepared by Henry V. Knight, Supervisor of Lights.

Dowagiac, Mich.—Light and Water Commissioner Reynolds has been authorized by City Council to install number of street lamps on West Railroad St. from Prairie Ronde St. north to city limits.

Pute, Mont.—City Council has decided to defer installation of new street lighting system in business district until early in spring.

Glendive, Mont.—Glendive is arranging to install a "white way" along Merrill Ave., the principal thoroughfare. New system will cover five blocks with five posts to each block. Lights will not be of cluster variety, but will be of latest sort of street illumination—one arc light to each post. These arcs are 1,000 candle power, against 200 of the five-light cluster variety.

Asbury Park, N. J.—First move toward new street lighting system in Asbury Park has been taken in Council at instance of Chairman Rugarber of street committee, on whose motion it was voted to purchase 30 of new cluster standards like those on beach to be placed in Railroad Square and small parks.

Clayville, N. Y.—Electric lights will be installed in Clayville.

Oswego, N. Y.—Petition has been forwarded to Postmaster General in Washington, requesting that appropriation be made for purchase and maintenance of eight ornamental lighting poles on three sides of Federal building.

Rome, N. Y.—Petitions have been received for installation of additional electric lights.

Mount Airy, N. C.—With completion of one block of Main St. in this city, citizens are demanding white way, and city, which owns the electric plant, will be asked to provide this improvement.

Wendell, N. C.—County Comrs. have authorized election by town of Wendell on issue of bonds for electric lights. Election will be held in December.

Dayton, O.—Ordinance will be considered providing for construction of municipal heat and light plant.

Toledo, O.—Ordinances have been passed providing for electric lighting of various streets.

Dallas, Tex.—Plans are being discussed for extending ornamental lights on Elm St.

Seattle, Wash.—Plans have been submitted by City Engineer to Council for installation of cluster lights on Fifth Ave., from Virginia St. to Denny Way. Estimated cost is \$17,000.

Spokane, Wash.—City Council has passed ordinance providing for installation of luminous arc lights along Riverside, in which city agrees to pay one-fourth of cost. Petition has been presented asking for same improvement on Trent Ave.

St. Mary's, Ont.—Present street lighting system will shortly be changed to ornamental system.

CONTRACT AWARDED.

Long Beach, Cal.—By Bd. of Pub. Works, for installation of ornamental lighting system on American Ave. from ocean front to Anaheim St., to K. T. Bennett, at \$11,434; on Broadway from Alamitos to Water St., to Woodill & Hulse, for \$23,525, and for interior of comfort station at Knoll Park, to W. D. Lambert, for \$495.

Dysart, Ia.—For construction of municipal electric light plant to Alama Engine & Supply Co., of Omaha, Neb., for \$12,809, which includes construction of power plant and erection of overhead distribution system. The Western Electric Co., of Chicago, Ill., has been awarded the contract for transformers, at \$481.

Holly, Mich.—By Village Council, for street lighting, to Independent Power Co. for a period of 10 years. Contracts call for maintenance of 70 lamps.

Dunkirk, N. Y.—At special meeting of Water Comrs. contract was awarded for purchase of two automatic stokers for new 400-horsepower boilers to be installed at city water and electric plant. Lehigh Stoker Co. was given contract at \$1,700.

Philadelphia, Pa.—For installing electrical equipment on Dock St. pier to Thompson Electric Co., 1606 Sansom St., Philadelphia.

Cashmere, Wash.—For installation of lamps in business and residence districts to Le Page, McKenna & Co., of Seattle.

FIRE EQUIPMENT

Wilmington, Del.—Washington Fire Company is preparing to purchase motor tractor for steam engine.

Wilmington, Del.—The purchasing committee of Independent Fire Company is contemplating purchase of combination auto chemical and hose wagon automobile, and also tractor for the engine.

Averysville, Ill.—Purchase of motor apparatus is being considered by village trustees.

Stafford, Kan.—Purchase of hook and ladder truck is being considered. L. N. Akers is Chief.

Govans, Md.—Motor apparatus will shortly be purchased.

Whitinsville, Mass.—Installation of fire alarm system is under consideration.

St. Paul, Minn.—Additional \$240,000 will be asked to improve and motorize fire department.

Jersey City, N. J.—Director of Public Safety Frank Hague at meeting of City Commissioners will urge immediate appropriation of \$245,720.85 to make needed improvements in Fire Department. Statement of requirements of Fire Department for year provides for new truck company, site to cost \$2,000; building, \$15,000; automobile truck, \$11,000; salaries for 11 men, \$11,200, and equipment, \$2,000. It also provides for new engine company, building of which will cost \$15,000; new automobile engine, \$11,000, and equipment, including 2,000 feet of new hose and suction hose, \$4,077.35. List of requirements also provides for new automobile steamer to cost \$10,000, six new runabouts for battalion chiefs to cost \$4,200, 10,000 feet of hose to cost \$12,000, 10 tractors for engines \$30,000, 6 tractors for trucks \$30,000, fire alarm boxes \$3,125, and other equipment, bringing aggregate desired amount up to \$245,720.85. Unless tractors are bought new horses will be needed.

Lakewood, N. J.—Elmer C. Benner, an Asbury Park architect, has been employed by the Fire Comrs. to design the building for new quarters for fire company No. 1, for which there is an appropriation of \$10,000. The building will be located in First St.

Morristown, N. J.—Bd. of Aldermen has authorized execution of 28 fire bonds of \$500 each, and delivery of same to New York Life Insurance Co. Money will be used to pay for new auto pumping engine.

Newark, N. J.—Chief Paul J. Moore of Fire Department has recommended to Board of Fire Commissioners that 10,000 feet of two and one-half inch hose be purchased to replace that in use prior to 1905. Commissioner Matthias Stratton will ask finance committee of Common Council for appropriation to make purchase.

Red Bank, N. J.—Plans for a new firehouse to be erected at rear of borough hall have been approved and accepted and clerk has been authorized to advertise for bids for erection of new building to be built either of brick or concrete blocks.

Wildwood, N. J.—Motor apparatus will shortly be purchased by North Wildwood Borough Council.

Dundee, N. Y.—Ordinance has been passed authorizing bond issue of \$7,500 for purchase of fire apparatus.

Ithaca, N. Y.—At special meeting of Cayuga Hose Co. No. 1, plans were formulated for campaign to raise \$4,000 by popular subscription, to enable company to purchase high-powered combination automobile hose and chemical machine. Company already has \$2,000 in its treasury, but needs \$4,000 more to effect the purchase.

Ithaca, N. Y.—Cataract Hose Company No. 7 has appointed committee to secure automobile apparatus. No. 7 company intends to purchase chassis and engine, utilizing apparatus now in their possession in new arrangement.

Yonkers, N. Y.—Bids will shortly be asked for two motor combination chemical and hose wagons. J. P. Mulcahy is Chief.

Portsmouth, O.—Bonds in sum of \$3,000 have been sold for purchase of new equipment.

Toledo, O.—Bids will be received at office of city auditor, Toledo, O., until 7:30 p. m., Nov. 19, 1913, for purchase of \$200,000 city of Toledo four and one-half per cent. fire department bonds. J. J. Lynch is City Auditor.

White Castle, Pa.—Secretary M. J. Babin will purchase 500 ft. of fire hose.

Suffolk, Va.—Councilman James Crocker has recommended to Council that big engine be motorized with front drive tractor, and that city buy combination motor hose and chemical engine of sufficient power to tow small engine. He also reported to Council that he had authorized installation of instantaneous heaters on present engines at once, so that steam is up when engine gets to the fire. He asked for purchase of truck with ladders sufficient to reach Suffolk's highest skyscrapers.

Huntington, W. Va.—Bids will be advertised at once for purchase of 1,000 ft. of hose.

Manitowoc, Wis.—Council has appropriated \$6,500 for auto fire trucks.

Manitowoc, Wis.—Appropriation of \$6,000 has been authorized for motor combination chemical and hose wagon. J. H. Kratz is Chief.

CONTRACTS AWARDED.

Lake Forest, Ill.—To White Co., of Cleveland, O., for motor hose wagon, at \$3,500.

Somerville, Mass.—By City, contract to Robinson Fire Apparatus Mfg. Co. of St. Louis, Mo., for one 55-ft. motor city service truck, and one double tank motor combination wagon, price \$12,000.

Norfolk, Neb.—To Bi-Lateral Fire Hose Co., of Chicago, contract for furnishing 500 ft. of hose at 95c. per ft.

Dayton, O.—Board of Control has been recommended to award contract for nineteen pieces of motor equipment for safety department to La France Company of Elmira, New York, at its bid of \$103,900. These nineteen pieces embrace nine combination fire and hose wagons, at an aggregate of \$45,000, two aerial trucks at \$11,000 each, two service ladder trucks at a cost of \$5,700 each, six steamer tractors at a total cost of \$25,500.

Allentown, Pa.—By City Council for motor driven fire engine for Columbia Fire Co., to International Motor Co., at \$4,290.

BRIDGES

Mount Ida, Ark.—Commissioners of Montgomery County have appropriated sum of \$10,000 for erection of bridge over Ouachita River.

Phoenix, Ariz.—The proposed Yuma bridge across Colorado River will be erected at once. Estimated cost, \$75,000.

Redding, Cal.—City Trustees have authorized Ross Construction Co. of Sacramento to prepare and submit plans and

specifications for projected bridge at Reid's Ferry, over which State highway is to cross Sacramento River at Redding. Company promised to have plans ready within a week.

Bradenton, Fla.—Board of Commissioners of Manatee County has had plans prepared for erection of reinforced concrete bridge across Manatee River between Bradenton and Palmetto.

Indianapolis, Ind.—Bonds in sum of \$250,000 will be sold to cover cost of repairing and erecting new bridges.

Dubuque, Ia.—Bd. of Spvs. of Dubuque Co. has decided to construct following described bridge and culvert work: Bridge on Pate Rd., in Sect. 33, Taylor Twp., Dubuque Co.; material, stone abutment and wing walls, concrete floor; clear width of roadway, 16 ft., clear length of span, 45 ft.; drainage area, 900 acres; estimated cost, \$2,900. Culvert in center of Sect. 21, Iowa Twp., Dubuque Co.; material, concrete; clear width of roadway, 20 ft.; size 4x4 ft.; depth of fill, 2 ft.; drainage area, 120 acres; estimated cost, \$450. Corrugated culvert east of corner to Sects. 26, 27, 34 and 35, Prairie Creek Twp., Dubuque Co.; clear width of roadway 20 ft.; size, 4 ft. 6 in.; depth of fill, 6 ft. 6 in.; drainage area, 200 acres; estimated cost, \$560.

Lindborg, Kan.—Plans are being made to rebuild Smoky Hill bridge. Estimated cost, \$15,000.

Ottawa, Kan.—In conference between Co. Comrs. and representatives of Twp. Bds. of Franklin and Hayes, agreement was jointly made for erection of two bridges across Wolf Creek, near LeLoup.

Hastings, Mich.—Citizens have voted in favor of \$13,000 bonds for constructing cement bridge to replace present Broadway bridge.

Fisher, Minn.—County Board at Crookston is receiving bids for construction of bridge over Red Lake River at cost of about \$15,000.

White Plains, N. Y.—Bids will be received later for \$60,000 bridge which will span Eastchester Creek. Plans and specifications have been prepared by Co. Engr. Wulff.

Wentworth, N. C.—Board of Commissioners of Rockingham County is contemplating bond issue of \$12,000 for erection of bridge over Dan River. J. A. Benton is Chairman of the Comrs.

Pittsburgh, Pa.—Proposals for construction of approaches to Northside Point Bridge have been opened by Acting Director Charles A. Finley of the Department of Public Works. Bids were: James H. McQuade, \$312,102.06; for the piling, \$1.45 per lin. ft., and for the paving, \$3.20 per sq. yd. Pittsburg Construction Co., \$305,000; piling, \$1.15 per lin. ft.; paving, \$3.50 per sq. yd. John F. Casey Co., \$244,150; piling, \$1.49; paving, \$3.50. Dravo Contracting Co., \$295,550; piling, \$1.49; paving, \$3.50. McCarthy & O'Heron, \$274,000; piling, \$1.30; paving, \$3.50. Booth & Flinn, \$224,000; piling, \$1.25; paving, \$3. The contracts will be awarded shortly.

Dallas, Tex.—County Commissioners' Court has voted to begin immediately repairing surface of Dallas-Oak Cliff viaduct with Jacksboro limestone as water-bound macadam pavement. It is planned to do work in sections, so Commissioners and County Engineer may make estimate as to probable cost and benefit of work before whole job is undertaken.

Fort Worth, Tex.—Completion of Allen Ave. viaduct is being urged.

Seattle, Wash.—Sum of \$3,000 has been appropriated from bridge fund to allow Bd. of Pub. Works to make test borings at sites of proposed bridges to be constructed over Lake Washington Canal at Fremont Ave. and 15th Ave. Northwest and over West Waterway at Spokane Ave. According to plans drawn by City Engr., he estimates cost of these bridges as follows: At Sixth Ave. N. E., with all steel approach \$767,000, or with wooden approach, \$430,000; at Fremont Ave., for bridge only, approaches being already in, \$420,000; at 15th Ave. N. W., with wooden approach, \$460,000, and at Spokane Ave., with long wooden approach, \$650,000.

Tacoma, Wash.—Comr. Woods has been authorized by City Council to approach Tacoma Ry. & Power Co. with offer to build joint bridge for street and rail traffic at corner of 38th and G Sts.

CONTRACTS AWARDED.

Lewes, Del.—To Walter M. Morgan at \$12,252 for South St. bridge over Lewes Canal.

Washington, D. C.—Construction of \$275,000 concrete bridge, which is to span Rock Creek, connecting Q St. in